Gleanings in Bee Culture

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Editorial

THE AMERICAN BEE JOURNAL.

WE are pleased to note the evident progress in the growth of the *American Bee Journal;* it is also a pleasure to see an occasional article from the pen of our old friend Geo. W. York, now of Sandpoint, Idaho. Mr. York was editor of the *American Bee Journal*, it will be remembered, for twenty years. While he has since gone into other business, he still retains his interest in bees, and is starting an apiary in a land that gives promise of being a great bee country in the near future.

THE OHIO STATE BEEKEEPERS' CONVENTION.

WE would call attention again to the Ohio State Beekeepers' convention that is to be held in Columbus on the 14th and 15th of January next. Secretary Shaw submits a tentative program which we are pleased to insert right here.

PROGRAM

TUESDAY, 2 P.M.

President's Address.
Report of Treasurer.
Report of Secretary.
Result of Apiary Inspection in Hamilton County
Fred W. Muth
With the Apiary Exhibit at County Fairs.....
Glenwood Beard

TUESDAY, 7:30 P. M.

Apiculture at the University.....
Prof. J. S. Hine, Ohio State University
Address—Organization.....E. B. Tyrrell,
Secretary National Beekeepers' Association
Address—C. P. Dadant, Editor *American Bee Journal*
Live-bee Demonstration.....E. R. Root,
Editor GLEANINGS IN BEE CULTURE.

WEDNESDAY, 9:30 A. M.

Florida Beekeeping.....J. E. Marchant
Queen-rearing.....J. C. Mosgrove
My Experience with European Foul Brood.....
B. J. Holden
Ohio Apiculture—Impressions of a Farmers' Institute Lecturer.....Prof. W. A. Matheny,
Ohio State University

WEDNESDAY, 1 P. M.

A Woman's Way with Bees...Mrs. Jessie Goodrich
Wax Rendering.....H. H. Root
Production of Comb Honey.....A. A. Doenges
Production of Extracted Honey.....H. G. Quirin
Topics for General Discusison

So far as we know, all the speakers assigned have promised to be present or send in papers. The convention will be held at Townsend Hall at the State University. It is expected that there will be from one to two hundred short-course agricultural students present at the meetings. This will ensure the largest bee convention the good old Buckeye State has ever had.

A SURE CURE FOR SPRING DWINDLING; HOW THE SCHEME OF POUND AND HALF-POUND PACKAGES OF BEES CAN SOLVE THE PROBLEM OF THE NORTHERN BEEKEEPER.

IN our last issue, on page 752, we mentioned the success we were having in shipping bees by the pound all over the United States with practically no loss. If others can be as successful as we have been (and we see no reason why they can not be after we show them how) it will be possible for one beekeeper in a locality in the South to supply a brother beekeeper in the North with 2-lb., 1-lb., or ½-lb. packages of bees for his weak or dwindling colonies, that he may have on hand, in the spring. Some colonies might need 2 lbs. of bees, others only 1 lb. or ½ lb. The problem has been, however, to find some one who could supply bees in pound packages *early enough* to meet this kind of demand. We have been having considerable correspondence with Mr. A. B. Marchant, of Sumatra, Fla., now temporarily at Appalachicola, covering the question of whether he could supply bees in this way during February, March, and April to those in the North who have spring dwindling. Mr. Marchant thinks he can take care of all who may desire bees in this form as he has an immense stock to draw from. Prices and particulars will be announced later.

If this scheme of sending pound packages of bees from the South to the North can be made a success it will enable the Northern man to save hundreds of valuable queens, and put new strength and vigor into nuclei that would otherwise struggle along all summer without furnishing any surplus. We see no reason why pound packages of *black* bees could not be sent northward at a reduced price. They would be just as good boosters as the more expensive bees.

RIPENING HONEY ARTIFICIALLY; WHY WE DO NOT RECOMMEND IT FOR THE AVERAGE BEEKEEPER.

We call attention to a most excellent article by Mr. Isaac Hopkins, p. 801, of this issue, on this subject. While we believe that the average beekeeper and *all* beginners should not attempt to ripen artificially, we are convinced that Mr. Hopkins knows how to do it; and there are doubtless other experts who have been able to do so. We hesitate to give countenance to the method because of its tendency to induce carelessness on the part of many extracted-honey producers, in that they will extract before the honey is thoroughly ripened, assuming that the process will be finished in open vats screened from bees. Too many times in this climate the humidity of the atmosphere is such that such exposed honey, so far from evaporating out the excess of water, takes up more of it. It is this condition of atmosphere that is responsible for the poor quality of some of the artificially ripened honey on the market. Such honey when put into cans and barrels causes no end of trouble. The honey ferments, causes a pressure until the cans burst, and the barrels shoot their bungs out like the shot of a gun. The honey then boils over, soiling every thing. In a damp atmosphere bees can ripen their honey while man fails.

When the late Mr. Alexander advocated ripening honey artificially he was roundly scored by honey merchants and beekeepers alike, and we were severely condemned for publishing the matter in the first place.

If all beekeepers were as careful as Mr. Hopkins, and if all of them would use a hydrometer to test the specific gravity of the honey before it is sent to market, there might not be so much objection to the process of artificial ripening. By the way, the hydrometer is something that every extracted-honey producer ought to have; for it transpires that some bee-ripened honey is not as thick as it should be.

GIVING A COLONY HAVING A VIRGIN, EGGS TO HASTEN HER EGG-LAYING.

Referring to the discussion on page 796 of this issue between the two Millers, we beg to butt in again—even if we do get smashed between two such heavy weights—especially so as one of the contestants says, "I will turn my attention to E. R. He is sitting as a judge, but I will make him co-defendant." In the first place, we may say we are of the same opinion still as expressed on page 708, Nov. 15, namely, that we have "never been able to discover that the giving of eggs and larvæ had any thing to do with hastening the demise of a virgin queen;" also that Mr. Pritchard "makes it a practice to give colonies with virgins young brood." Notice in the second quotation that we are talking about *colonies* and not *nuclei*. As a matter of fact we do not make it a practice to give nuclei eggs and larvæ to stimulate their virgins to laying. As A. C. Miller points out it would be too expensive, and take too much time. In the second place, we did not abandon our baby nuclei as we had intended. Early in the season we did think (see page 326) that full-size-frame Langstroth nuclei would be better than our twin baby nuclei; but a further and much more prolonged test during this season has convinced Mr. Pritchard that the babies more than hold their own. We did not propose to abandon them (see page 327) as Mr. Miller implies, because of a "loss of queens," nor because we had to give them eggs, but rather because we thought, all things considered, the larger full-sized nuclei would raise queens just as cheap or cheaper (see page 326). But on this point our Mr. Pritchard changed his mind before the season was over. We have been testing out these baby nuclei in lots of 300 at a time. We tried out 200 of the full-sized Langstroth-frame nuclei alongside of about 300 of the small ones. The little ones showed their superiority in more ways than one.

Yes, Mr. Pritchard is a man who keeps tab on everything he does. He has to or he could not keep up with orders. When we ask him for an opinion on a certain queen-rearing proposition he proves his statement by his records. These records, in connection with raising nearly 3000 queens in a season, were the basis of the statement on page 718, which we quoted above at the head of the editorial.

We may say further that Mr. Pritchard explains that he does not give the baby nuclei eggs or larvæ, for the simple reason that they do not need them. The laying queens just taken out of them he says leave no deficiency of either at the time new virgins are put in to take their place. These larger-sized twin-baby nuclei maintain their strength fairly well throughout the season. It is only the small-sized ones such as Mr. Pratt used that "peter out."

RETROSPECT FOR THE YEAR 1912.

Hardly had the new year been launched when most severe winter weather set in. The mercury began to drop, drop, clear down, and beekeepers everywhere were hoping and confidently expecting there would be a let-

up; but there was no let-up—at least for a very long period in most of the Northern States. The severe cold continued clear up into spring; and not until late spring did the beekeepers over the country realize that the winter of 1911 and '12 was the most severe ever experienced since the winter of 1881 and '82. Then, as this year, most colonies managed to pull through to the beginning of spring, but in a weakened condition. When the changeable spring weather came on, spring dwindling of the worst kind did its deadly work, so that the winter of 1911 and '12 and the following spring caused the greatest mortality among bees that has been known for thirty years. It was indeed a severe blow to the industry; but, fortunately for the bees and their owners, the following summer was a good honey year in most localities of the Northern States at least. Bees have a wonderfully recuperative power; and in spite of the fact that two-thirds of them were lost in many localities, and even 75 to 90 per cent in others, they quickly recovered themselves, so that now, as we are about to embark in 1913, we find practically all the bees replaced. Strangely enough, after the severe winter, clovers made a most wonderful growth, and well they might, because the summer of 1912 had an abundance of rain all over the country. Automobile men everywhere kicked about the bad roads, and everybody was complaining of a lack of dependable weather. Contractors were unable to complete their jobs on time. But this *very condition* made a wonderful growth in all the clovers. Unless untoward conditions prevail during the next six months, 1913 will witness the greatest yield of clover that has been known in many a year. There is no question but that 1912 would have produced the greatest crop of Eastern honey known in history had it not been for the fact that the number of bees to gather it was away below the average. But in spite of the few bees, 1912 will record a larger yield of *clover* honey than for many years. Not all parts of the West and South, however, fared as well as the clover belt, so that the total aggregate of honey of all kinds will be only slightly in excess of an average year.

The year 1911 took away such men as Mr. Hutchinson, Heddon, Hilton, Hall, and Herlong—all stars in the apicultural firmament; and 1912 has likewise taken four other stars—John S. Harbison, John G. Corey, both of the western coast, and R. L. Taylor, of Michigan, and S. T. Pettit, of Ontario.

The year 1912 has witnessed the change of ownership of the *American Bee Journal;* and those of our subscribers who are also readers of that publication will not fail to note its strong and healthy growth. The Dadants are to be congratulated. The *Beekeepers' Review* is now the official organ of the National Beekeepers' Association, with a corps of editors and contributors that should and doubtless will make the *Review* a great help to the organization it fosters. The year has not been marked by any great inventions or methods of management; but there has been a healthy development, showing that the industry is being put more and more on a solid foundation. The don't-care, don't-read-bee-papers type of beekeepers are dropping out. What have not been put out of business by bee diseases have been eliminated by winter losses. In their places have come the enthusiastic amateurs from the agricultural and professional ranks, and also the specialist beekeepers. More and more we see a disposition on the part of many to keep bees on a large scale. Extractors are now being made in much larger sizes than formerly. Power-driven machines are taking the place of those driven by hand; honey-pumps and steam uncapping-knives are demonstrating their superiority over the old ways.

More attention is being given to the marketing of honey. The tendency to drop the production of comb honey entirely has been checked, and now we find more comb-honey producers producing a little extracted, and more extracted-honey producers producing a little comb honey. 'Tis well.

The amount of white clover in the soil all over the United States shows that 1913 is going to deal kindly with us providing we have nothing more than an average winter. As it is seldom that one severe winter follows another, we have every reason to think that 1913 will let us have our bees and our honey.

The year 1912 has seen the publication of a larger number of free bulletins on bees, both State and National, than usual. The Bureau of Entomology, Washington, D. C., for example, has sent out a large number on various phases of the industry. Among the States that have given us complete books on bees, for free distribution, are Massachusetts, Pennsylvania, and Texas, as well as Ontario, Canada. Apicultural schools are growing and developing, both in this country and Canada, so that we now have at least four universities that have complete courses in apiculture, and a score or more that give more or less prominence to bee culture in connection with their general agricultural courses.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

KARL MIKA, *Deutsche Imker*, 321, claims great increase of surplus from keeping bees under glass, as in a greenhouse.

FAIRNESS requires, after having written that Straw, p. 754, about the trouble with too thick glass in shipping cases, that I should report that, since writing it, I've glassed some 400 safety cases without meeting a glass thick enough to ruffle my temper. After the years of struggling I've had, what a delight it was!

GLEANINGS is quoted in *Deutsche Bzcht.*, Oct. 1, as saying the best place to have combs built out is in a super over a strong colony. Dr. Herter approves, emphasizing the strength of the colony, and adding that the colony must be in the humor for building, when it will build just as well before or behind the brood-nest as over it. (This refers to hives with combs running parallel with the entrance.)

EXACTLY how bees gather pollen has been difficult to learn because of the exceedingly rapid movement of the bees. The cinematograph has helped out. Pictures are taken in which the bees can be made to go slow enough to be easily followed.—*Leipzg. Btzg.*, 158. [Time after time we have tried to discover just how bees transfer the pollen masses from one leg to the other. To the ordinary human eye it is nothing short of a sleight-of-hand performance. We are glad to know that the cinematograph is going to show the steps of the process. If it does, GLEANINGS will be glad to illustrate them on its pages.—ED.]

A TEMPERATURE of 32 to 35 degrees would be considered ideal for outdoor wintering, even if there was no flight for four or five months. Now why shouldn't Elmer Hutchinson's bees stand it just as well in the cellar, *provided the air is just as good?* [We assent to the last sentence; but we have not yet seen the cellar where the ventilation was as good inside as outdoors. With perfect ventilation and a dry atmosphere, bees will undoubtedly stand a lower temperature than where the air is bad, and laden with moisture. Even human beings suffer more severely in a damp and chilly atmosphere than they do in a dry cold air. —ED.]

ALARM is expressed, *Leipzg. Bztg.*, 150, over a new danger to German beekeeping. In certain localities all the field-bees are lost in a short time. In the same localities poison-sprays are used upon mustard in bloom. [Sometimes these poison sprays are destructive to bee life, and at other times, apparently, they have no effect. The spraying of fruit-trees when in bloom is undoubtedly destructive to bees sometimes; but it is equally apparent that it is not always destructive. Much depends on the character of the spraying liquid and the strength of it. Ordinary solutions of Paris green, so far as we can ascertain, sufficiently strong to kill the codling moth, will kill brood as well as bees. In the case under consideration it is evident that the poison spray used on mustard in bloom was strong enough to kill bees.—ED.]

IF ENOUGH beekeepers do not work for comb honey it will not be the fault of GLEANINGS. Many a year ago I gave up the extractor, and have produced sections exclusively. Now, in spite of the exhortations of GLEANINGS I'm planning to run part of my colonies next year for extracted. For one thing, I want to learn how, and am counting on a lot of fun in the learning. [In this connection it is our belief that all comb-honey producers should produce a little extracted. Two extracting-combs in each side of the first comb-honey super put on the hive serve the double purpose of baiting the bees into sections and preventing unfinished sections in the outside rows.—ED.]

NIKOLAUS PIRPAMER says, *Ill. Monatsblaetter*, 117, that for 30 years he has wintered nearly every year 100 colonies or more, and in that time has fed thousands of kilograms of sugar. Bees wintered well on sugar, but he noticed that colonies heavy with sugar syrup the first of October would be again light two months later, while colonies that had gathered their own stores had not lost perceptibly in weight during the same time. This is a matter worth inquiring into. [This does not seem reasonable, and we should be inclined to believe that there must be a mistake somewhere. We have never observed any thing of that sort in this locality. If any one else in any other locality has, let him speak up. Reports for many years back have shown, on the contrary, that a given amount of sugar syrup will go further than the same amount of natural stores; that is to say, the bees will consume less of them. Some honeys will cause uneasiness; and uneasiness results in a larger consumption of stores. Stores of sugar syrup, on the other hand, are always of uniform quality, and have a tendency to induce the best kind of wintering.—ED.]

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

INFORMATION ABOUT HIVES.

As the time for buying new supplies for the coming season is at hand, inquiries about the kinds of hives to purchase, with requests for information on the advantage of divisible-brood-chamber hives have become more numerous. In connection with this matter much information is being desired about bulk comb honey and its production, so that the proper hive and super apparatus may be obtained when purchasing the new supplies. After having answered a number of them, others keep coming in; therefore the following information has been "boiled down" to hit each inquirer.

1. I would urge those who do not know what kind of hive to adopt to purchase the regular standard Langstroth ten-frame size, with shallow supers to begin with, trying only one or two divisible hives alongside of these. This is to guard against investing in something you may not find just what you thought you wanted a larger amount of money than is actually necessary to make a small trial. If the divisible hives prove all right, well and good; and if not, there are only a few of them, and they can be used as supers on the L. hives. In either case the L. hives can be more easily disposed of, as these are regular (or standard) goods.

2. The shallow frames, Hoffman style, 5⅜ inches deep, with ½-inch top-bars, will have to be especially ordered, or frames with wide thin top-bars will be sent out by the supply dealer. The latter are somewhat weak, and sag in time, especially if grooved for foundation. This groove is not necessary with our method of fastening the foundation with melted beeswax or by any of the other most common methods used here in the South.

3. Foundation of the thin surplus kind is always used in full sheets without wires. Very few beekeepers wire these shallow frames, even for extracted honey. However, a heavier grade of foundation would have to be used if the beekeeper intends to extract from newly built combs unless a little care is exercised in extracting them the first time. After that they are tough enough to stand rougher handling.

4. No wires are ever used in these frames for bulk-comb-honey production, and thin surplus foundation is used. Extra thin is a little too light, and the bees tear it down badly.

5. All of our honey is hauled home from out-apiaries on a spring wagon—some of it for more than 20 miles. It is very seldom that any of the combs are broken down, and very few even in the hottest summer weather.

6. In answer to the question whether it would ever become necessary or satisfactory to use more than two stories for a brood-nest when one has Carniolan bees, I would say that it is advantageous to provide just as much room as is needed for the best results with any race of bees. I find that my two apiaries of Carniolans require a larger hive, and three shallow stories are used as the main hive and brood-chamber the greater part of the season. All our normal colonies are wintered in three such stories. The upper one furnishes just that much for winter stores, lasting far into the spring, and provides extra breeding room during the spring months. It also provides storing room for the first, scattering honey, and, later, becomes a shallow extracting-super for extracted honey, which is raised up to receive the empty comb-honey super between it and the brood-chamber.

* * *

POISONING WITH ARSENATE OF LEAD.

Since cotton is a very important honey-plant in many of the Southern States, the matter of poison sprays that affect the bees of the neighborhood where spraying is done becomes a serious question for the beekeepers. The following letter illustrates the point:

Dear Friend:—I am writing for information on cotton-spraying. You always speak quite highly of cotton as a honey-plant. I get much honey from that source, but I am much worried since the people are beginning to use arsenate of lead for spraying. Two of my neighbors have lost all their bees from cotton-poisoning. Does arsenate of lead work the same in your district? Would it be better to move my bees back further into the woods? Those who lost their bees were right in the center of large poisoned cotton-fields, while mine were on the edge of the cotton district, a few rods in the woods.

Riveriera, Tex. J. M. SAXER.

I have given this matter a good deal of attention—perhaps more because I depend almost entirely upon cotton as the chief source of nectar. In other words I would have to give up beekeeping if cotton did not yield honey in my beekeeping territory; and there are many others who will say the same about their localities. The amount of cotton honey produced is much larger than many suppose. We alone harvested about sixty thousand pounds of cotton honey this year, and bought a larger amount. It should be remembered that this was the poorest year we have had.

(Continued to page 803.)

SIFTINGS

J. E. CRANE, Middlebury, Vt.

The bee-lines illustrated by J. Ford Sempers, page 618, Oct. 1, are of exceeding interest, and shows that bees know better how to fly from one point to another better than we have supposed.

* * *

Mr. Chadwick is quite right in his recommendation of the use of burlap bags for smoker fuel, page 616, Oct. 1—nothing better. No objection if the burlap is covered with propolis.

* * *

We received a card from a beekeeper a few days ago who had some honey to sell, saying he would have sent us a sample of his honey, but he had a little foul brood among his bees, and did not wish in any way to expose our section to disease. If all were as careful we should have much less foul brood.

* * *

The yield of honey Dr. Miller secured the past season is certainly surprising, and shows the value of sticking to the business through thick and thin, and not neglecting the bees because it looks bad or discouraging. Had he not fed and cared for them until honey came I dare say he would have had a poor season.

* * *

Mr. P. C. Chadwick gives some interesting paragraphs from the Pacific coast; and while conditions are very different there from those on this side of the continent, still the fact remains that the general principles are the same, and it is the man there as here who tends his business, keeping watch as to what it is best to do, and doing his own thinking, who succeeds.

* * *

That editorial, page 503, Aug. 15, on migratory beekeeping was very interesting reading although few of us will be able to try it; but it makes one wish he were young again. To succeed, one will not only need "brains and capital" but a large amount of physical endurance as well. The building-up of a large number of colonies from a few is a trade of itself, and one which, I fear, but few of us fully understand.

* * *

Mr. Chadwick, p. 616, Oct. 1, refers to an item of mine telling how I found a very strong colony in early spring that had wintered in fine condition with a very large entrance, and thinks I have found grounds for a large winter entrance. That is not exactly the idea. I still prefer a small winter entrance for outdoor wintering; but when I find a case like the one mentioned, where a colony has wintered in the best possible condition under conditions which I do not approve I like to speak of it, that we may all study the subject more carefully and find out the exact truth, which is vastly more important than to brace up my pet theories.

* * *

Louis H. Scholl calls for a good hive number. Say, my friend, I have one that is durable and cheap. It has been in use for more than forty years, and is good yet. Take a little boiled linseed oil and some lampblack. Mix the black with the oil rather thick, and then use with a small brush on stencil figures. I like those two inches high, so I can see them a long way off. Oh! you said you wanted figures that you could put on in a "jiffy," and change from one hive to another in the same space of time. Well, put your numbers on your covers if you want to change them.

* * *

Shipping bees in two or three pound packages, or even in larger packages, without combs or hives, is a new idea as explained on pages 645 and 649, Oct. 15. If it proves a success (as seems probable) it will be a boon to many beekeepers when, after an unusually poor season, their stock of bees is greatly reduced but their supply of combs and hives large. An extra-good season almost invariably follows a very poor one; and if one can get bees reasonably cheap he can stock up at once, and not have to melt combs into wax, and can thus be able to get not only the hives filled with bees, but surplus more than enough to pay for the bees bought.

* * *

I have about come to the conclusion that a beekeeper's education is not quite complete until he has had one or two years away from home inspecting bees. He sees and learns a great many things he has never known before or even dreamed of. A little while ago I found a colony trying to rear two larvæ in the same cell. I counted nine such cells containing each two larvæ about half grown, and they appeared to fill the cell about as full as one full-grown larva. I had supposed that two might often hatch in a cell, but supposed they were always removed when quite young. This colony was quite weak, and the total amount of

brood in the hive small. Whether the bees of this hive were trying to economize their heat and space by rearing two to the cell, or they had overlooked the fact that two had hatched in these cells I was unable to determine.

* * *

Reference is made by Dr. Miller, page 504, Aug. 15, to the dislike of bees for black stockings. Now, I believe it is the almost universal opinion that bees have a natural dislike or prejudice against black; and while it seems certain they can or will become accustomed to black, yet, considering the brevity of bee life and the value of the beekeeper's time, it does not pay to try to educate them against their natural instincts. It is better to adapt ourselves or apparel to their ideas of propriety. In this connection I am reminded that our truckman drives a white horse, and never has any fear of its getting stung when driving it near bees when going to a yard of bees for us for a load of honey.

* * *

Can bees count? Dr. Miller, page 540, Sept. 1, mentions or suggests that bees can or may tell the difference between an eight and a ten spot card. Well, perhaps they may; but I doubt much if they often do. I think I have mentioned before that a few years ago I set the hives of one yard of bees in long rows, and had a great deal of trouble in their getting mixed and losing their own hives, going into unoccupied hives in cool weather and losing their lives. When I saw what the results were I used a paint-brush freely, giving one hive a large splash on the hive front, another two or three or more, and others a circle or bar across the front, but with very unsatisfactory results until I changed the location of the hives, allowing some to enter from one direction, and others from some other point of the compass.

* * *

COLORADO GRADING RULES RATHER STRICT.

I notice on page 610, Oct. 1, a call for more comb honey in proportion to the amount of extracted honey than is now produced. I have been wondering for some time what effect the close grading would have on the production of comb honey. The Colorado rules allow but fifty unsealed cells in their lowest grade, no matter how well the section is otherwise filled. We have been told that all sections below this grade should be marketed near home; but we are not told how to sell two thousand light sections in a town of 200 population or less. Here, for instance, is a section that weighs 13 ounces, and has 60 unsealed cells. That must be thrown out, although half the cells next to the wood are sealed on one side. Is there no demand in our larger towns for such combs? I believe there is; but if such sections must be thrown out, and the honey extracted and combs melted up, I am not surprised that so many extract their crop of honey. The Eastern grading rules are more liberal—perhaps too much so—as I doubt the wisdom of selling the ordinary size of section that would weigh but eight ounces. However, there may be a demand for such sections in some places. The desirability of nicely filled and capped sections can not be over-estimated; and the suggestion of the use of extracting combs in the outside of supers is certainly a move in the right direction.

* * *

I was much interested in reading P. F. X. Ryan's kindly criticism of Prof. J. H. Lovell's article on flowers, page 654, Oct. 15, until near the close where he asked me to stand up and take my medicine. Humph! I see it does make a difference whose ox is gored. But really, friend Ryan, I believe I used to think exactly as you do, but have come to think somewhat differently in these later years. In fact, I think that the Christ was born, suffered hunger, thirst, and weariness, as we do; that he grew strong by the use of his muscles as we do, and that his mind grew strong by thinking, whether in school or out of school, in the open fields, or studying the social and religious customs of the people among whom he lived, just as our minds grow strong by using them. Of one thing I am sure. He was a wonderful thinker, and he taught those around him to think also, to draw lessons from the birds and flowers and fields. More, he taught them to put first things first, and do as well as to think; and his life may be an inspiration to us in our business as truly as the life of Lincoln or Langstroth. Suppose we draw a lesson from the birds this afternoon. Why does a hen sit on a porcelain egg half the summer? That is easy enough. Because she doesn't think or reason, or she would know she could not hatch a brood of fluffy chicks from porcelain eggs. And why does a man buy an improved frame hive and never open it, but let the bees build the combs crosswise or any way it happens? Or why does he let his bees starve just before the harvest? Why? That seems easy enough too. Because, like a bird, he does not think or reason, or he would conduct his business in a more sensible way.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Continued from Dec. 1.

After spending a short time at this apiary we rode back to Perris, and then to the northeast to the apiary of E. Gunther. Leaving there we continued until we reached the home of Mr. W. R. Neudorf. Here I found a typical little home lying in a cove made by the abrupt ending of a short canyon—just a few acres, but well protected on all sides by high hills. Oranges, pears, figs, and other fruits were thriving, as well as an apiary of about 200 colonies. Mr. Neudorf had on hand about 20 cases of honey of this season's crop. Here I saw the most complete honey-house I have seen in California. It was a two-story affair with ample room for all purposes. Mr. Neudorf has his bees located on a sloping bench of land above his house, the honey-house being built in the side of the hill—the upper story on a level with the apiary, the lower on a level with other buildings. The honey is wheeled into the upper story, and then extracted, passing through a gravity strainer to an immense tank below. The lower story is concrete throughout, with a concrete base for the honey-tank to rest on at a height just sufficient to admit a 60-lb. can under the faucet. There is also a narrow opening left in the base large enough so that a small oil-stove may be placed under the tank to warm the honey when necessary to make it run freely. Honey can be drawn from the tank at any time as it is entirely enclosed, and is bee and fly proof. I planned to get a picture of this place for GLEANINGS; but owing to extremely cloudy weather I could not.

Here I left Harry for the day. He returned to his home ten miles to the west while I went on through Coyote Pass, and continued for a shorter distance down into the Hemet Valley. I reached the home of my wife's mother about 6 P. M., somewhat tired, after covering 80 miles for the day, but well satisfied with my machine.

The next morning I was up early, and ready for another day's travel. Clouds were hanging far below the summit of Mt. San Jacinto; but "It never rains in California in the summer time." Harry and I were to meet at the Elsinore road at 9 A. M., and visit a number of apiaries on the way down to Elsinore. We met as planned, and were soon at the home of Thos. Chaffin; but no one was at home, so we continued our journey for a few miles. Leaving our machines near the road we walked a mile to the apiary of Mrs. H. R. Youngling, who is Harry's aunt. Clouds had continued to grow more dense since morning, and it was now beginning to mist and show signs of rain; but "It never rains in the summer in California." By the time we reached our machines it was sprinkling lively, so we journeyed leisurely on down the canyon toward Elsinore, stopping on the way at an apiary owned by a Mr. Farr. We did not tarry long, but began to make haste toward Elsinore; but, alas! we had covered but a short distance when the storm broke in earnest, and a torrential rain began falling. Harry, who was in the lead, took a spill in the creek bed, and I followed quickly. He got a "short" on a cutout switch connecting his engine, and was helpless; but he urged me to go for Elsinore "on the high," saying that he would follow later. I obeyed like a little boy, for water was now running into my shoes. I pulled into the first garage I came to, wet and cold, and waited for Harry, who, in the meantime, had found the source of his trouble. In about twenty minutes he arrived.

Still it rained. We were soaked and chilled, and in sad need of dry clothes. We visited a drygoods store and bought some dry underwear, made our way to the bath-house, and made the change. Then we went to a restaurant for dinner, which we should have enjoyed immensely save for the fact that the coffee was made with sulphur water, and that the proprietor nearly died with an attack of asthma while we were at the table. Still it rained. For three hours we waited in vain for a clearing sky.

The rain eventually ceased. We were 12 miles from Perris Valley, and Harry was obliged to be home at 6 P. M. The road was there, to be sure, but such a road as it was—mud, mud, mud! We started over the washboard hills back to Perris. How we got there I have never been able fully to understand. I do know this, however. Harry was in the lead all of the time. Worse roads could hardly be imagined for motor cycling. Our machines slipped and skidded, and I was never more tired in my life than when I retired that night. My success as a motorcycle novice in getting over such roads was due largely to the fact that I was riding a very low Excelsior, and my 34 inches of leg length was able to right my machine many a time and prevent a spill.

I spent the night with the Warrs—a pleasant one indeed, and I was much impressed with the practical ideas and devices of both A. T. and his son Harry J.

Conversations with Doolittle

At Borodino, New York.

LIGHT IN BEE-CELLAR, ETC.

"Can bees be wintered in a cellar which is light as well as one which is totally dark?"

"It is generally believed that bees winter best in a perfectly dark cellar; and where the cellar may be either light or dark, choose the dark one. This advice is especially for the novice, or the one just starting in wintering bees in the cellar. But for the experienced apiarist I would say that darkness is not a necessity. Bees have been successfully wintered in the farmer's cellar, where my out-apiary is situated, for over twenty years. In fact, perhaps the bees winter just as well there on an average as here at home in my special bee-cellar where it is so dark that one can not see a piece of perfectly white paper waved within four inches of his eyes. The farmer uses his cellar just the same as he ever did except just the space which the bees occupy. He carries stuff to and from the cellar at any time during the winter. When he is loading his cabbage, potatoes, or any other truck for market, the outside, or what is called the "bulk head" door, is left open for one, two, or three hours as may be required, while the three windows in the cellar walls are left uncovered in winter the same as in summer, so that the family may have light when getting the various things needed for family use. No attention is paid to the light or outside air entering except that I set the hives so that the entrances face the rear wall.

"The bulkhead door spoken of, leading into the cellar, is in the front wall, together with one window; and there is a window in the center of each side wall, but none in the back wall. At first I thought that these windows must be darkened, and that the outside door, if opened up for loading things, must have a blanket hung up in front so that it would keep things as dark as possible, except when passing through the doorway. But the farmer said if that must be required, I would have to winter the bees somewhere else, and so I concluded to try one winter with his using the cellar as he always had done. And that trial has lengthened out to over twenty years. With the hives set close together, with the entrances toward the wall, and as near the rear wall as possible and not have the bottom-boards touch it, the bees are in a sort of semi-darkness; or, in other words, the light does not directly strike them; but from the number dying on the cellar bottom I can see no difference in favor of my undisturbed, perfectly dark special repository here at home. Another thing, I have never found twenty bees dead about the windows in either wall, which shows that light from these windows does no harm."

"What is the best way to keep the hands clean when working with the bees at times when there is a rush of honey coming in, when it drops from the cells on account of the thinness of the nectar?"

"Wipe the honey off on your pantaloons, of course. Strange that you did not know of this trick. In the infancy of my bee-keeping experience I went to see an old beekeeper of a quarter-century standing in his profession. The time of year was when thin nectar was coming in; and every time he got his hands daubed with this thin honey he would use his trousers for a towel. By the looks, no one would hesitate to say that those trousers would stand alone after he had shed them at night. When I came home I told Mrs. D. that I had found out how to get rid of that disagreeable stickiness I had complained to her about the day before. But she objected to my using this way. So the result was that three or four crocks with water in them were placed at convenient points about the apiary."

"Lastly, are there queen-cells in all well-regulated colonies at all times of the year? I am told to look for queen-cells for indications of swarming; but I find them on the combs in the fall of the year when I am preparing my bees for winter."

"It is supposed by the writers in our bee papers that the readers of these papers have learned at least some of the rudimentary principles of beekeeping by reading one or more of our good bee books which enter into the little details of the pursuit. What you see in the fall on the combs are queen-cups, or embryo queen-cells. These resemble an acorn-cradle or saucer. These are found in every colony after the hives are filled with comb, so far as my experience goes. These cups are not more than one-fourth to three-eighths of an inch deep, and are no sign of swarming. When the bees are preparing for swarming they draw out the edges all around the cradle or add new wax to these edges till you find thin walls half an inch or more deep, at which time an egg is deposited in them by the queen. This is an indication that such a colony intends to swarm unless prevented by the apiarist, or bad weather causing a dearth of nectar. In eight or nine days after the queen lays an egg in these thin-walled queen-cells, the cells are sealed over; and, unless a swarm issues sooner, you may expect the swarm to come out the day after the first queen-cell is sealed."

General Correspondence

MILLER VERSUS MILLER

In Re Virgins' Eggs and Larvæ

BY ARTHUR C. MILLER

So I am a "trouble-maker" according to Dr. Miller (Straws, Nov. 15). Very sorry, doctor, but it isn't my fault. Now listen!

Two to five per cent loss of young queens is about normal, and such loss is party traceable to toads, spiders, and birds. Anyhow, when not over five per cent are missing, the subject calls for no special notice; but when it goes above five per cent there is something wrong in the system. When it jumps up to forty-seven per cent following the addition of eggs and larvæ to the nuclei from which the queens are mated, it is high time to be taking a look around. And that was your loss, doctor.

You say, "For years it has been considered the proper thing to give young brood to a nucleus with a virgin to make her lay sooner." I don't want my virgins to lay; but, seriously, that quoted sentence gives the clue to the reason for the addition of brood as stated, not always causing the disappearance of the young queen; *i. e.,* she is not a virgin. When she has been there so long that the beekeeper becomes impatient at her not laying, and, to hasten matters, he adds young brood, and then laying occurs soon after, it is a pretty safe guess that the young queen was mated before any brood was added.

My error, doctor, was using the phrase, "almost invariably." That is, perhaps, too strong unless it happily results in stirring others, as it stirred you, to investigate. But deducting from your forty-seven per cent loss the average normal loss of five per cent, we have a loss of forty-two per cent —a loss too high to be tolerated.

You may ask, "If it were due to the addition of eggs and larvæ, why did not the queens disappear from the other nuclei?" To use your own phrase, "I don't know." But I make the following suggestions:

Some of the young queens were perhaps mated, or on their mating flight, or some of the combs added may not have had eggs as well as young larvæ.

Henry Alley, who perhaps raised as many queens in his life as any one has, told me a couple of years before his death that, unless he waited three days after removing a laying queen before running in a virgin, the percentage of young queens "missing" was so great that he could not afford to introduce them before that time had elapsed. The three days allowed time for all the eggs to hatch.

I said *eggs and young larvae,* because combs containing only old larvæ and sealed brood may be added without causing the disappearance of the young queens. Not having experimented with comb containing eggs only (for such would be of no help to the nucleus) I can not say what effect they would have.

A strong nucleus does not need strengthening, and a weak one can not properly care for a full sheet of sealed brood; hence it will be found that the experienced beekeeper will select combs containing only a small area of brood, and such combs in the queen-rearing season usually have eggs and larvæ as well as sealed brood. In other words, where young larvæ are present, eggs also are usually present. The presence of eggs and larvæ bespeaks to the bees the presence of a laying queen, and probably it conveys the same information to the virgin, and the normal reaction follows.

Now, if you please, doctor, I will turn my attention to E. R. He is sitting as judge, but I will make him co-defendant.

A man who has to hustle at queen-raising as Mr. Pritchard has to, has not much time for experimenting or keeping careful tabs on all of his operations. E. R. says of him: "Indeed, he makes it a practice to give colonies with virgins young brood." I venture to assert that that treatment is too strong. Treatment of nuclei on that basis is not only unnecessary, but would be so expensive that no queen-breeder could profitably continue it.

Now, doctor, you and Mr. Pritchard and E. R. note this: Some time ago they gave up the baby nuclei in twin mating-boxes, stating that the trouble of maintaining them in normal condition, and the *loss of queens,* was so great that they could not profitably continue them. And baby nuclei have to be frequently strengthened, as you know, and it is usually done (and taught) by adding brood, but *not* "in this locality."

Now, doctor, let us watch them explain, asking them first to make careful experiments on a hundred or so cases.

And if you and E. R. please, I beg to amend my statement from "almost invariably" to this: The addition of eggs and larvæ to the nuclei containing virgins is followed in such a large number of cases by the disappearance of the virgins that the practice should be discouraged.

Providence, R. I., Nov. 26.

[See editorial.]

QUEENLESS COLONIES GATHERING POLLEN

Fermented Comb Honey, and Honey Fed to Bees

BY R. F. HOLTERMANN

On page 705, Nov. 1, appear some items in connection with the above subject. I may not know what I am talking about; but for years this subject of pollen-gathering and queenless colonies has been before me. I have had beekeepers tell me that they knew their colonies were all right because they were all bringing in pollen. If there is any thing in this I should like to be enlightened. I have not yet learned to distinguish queenless colonies by any such method; and, to be quite frank, I never expect to tell a queenless colony in that way. With all the bees I have, and robbing going on at every opportunity in my locality in the fall of the year, I do not examine every colony at that time to make sure it has a laying queen. Next spring, however, unless that spring is an exception to other springs, I expect to find some colonies dead or nearly so, and the evidence of a queenless condition last fall will be pollen-clogged combs, indicating that the bees gathered pollen, and did not have larvæ to feed the pollen to, and that it had, therefore, accumulated in the combs. I find no exception to this. Does this not then prove conclusively that queenless colonies do gather pollen? Of course I do not now refer to a colony so long queenless that the bees are all old and with more than one foot in the grave.

FERMENTED COMB HONEY.

The fermentation of comb honey may result from honey-dew which, before being gathered, had the germs of fermentation in it. I had one experience which I am not anxious to have repeated; and if there are such stores in the brood-chambers, unless the winter is of such a nature that the bees can fly frequently, the bees are likely to contract dysentery.

FEEDING HONEY BACK TO BEES.

In view of the prevalence of foul brood, and since no beekeeper can be absolutely positive that there is no germ of foul brood in his apiary, is it wise to feed honey to bees? I think not. In extracting, the honey from one colony is so mixed with that of many others that it does not take many diseased colonies in an apiary to make all the extracted honey more than dangerous to feed back. I have no personal experience in this direction; but I could name some well-known beekeepers who contaminated almost their entire apiary by feeding back diseased honey when, of course, this was entirely outside of their expectation and object.

More, the feeding of honey excites bees much more than feeding back syrup, and they are more inclined to rob. Henry Alley, on this latter ground, roundly condemns feeding honey to stimulate nuclei, etc., in queen-rearing. I also venture the opinion that, on account of the added excitement, there will be less of actually ripe stores in the combs when the bees get down to normal from feeding 20 lbs. of stores with honey in them than if they contain sugar syrup, and that with an equal percentage of water in them. Lastly, there are no better winter stores than sugar syrup made from the best granulated sugar and water with a teaspoonful of tartaric acid dissolved in a cupful of water and stirred into the syrup when the latter begins to boil. Why, then, venture honey?

Brantford, Canada.

THE QUALITY OF THE QUEEN

What Assures Success in Beekeeping?

BY MAJOR SHALLARD

If I were asked what assures success in beekeeping I would say the quality of the queen. The queen first, the queen second, the queen third, and every time. Given good queens and bad management, you will get honey; given bad or indifferent queens and good management, you might get honey.

THE HIVES NOT SO IMPORTANT.

In my opinion the shape, make, or condition of the hive, always provided that it is large enough to give the queen and bees sufficient room for breeding and storing, has very little to do with the matter. I have a lot of old unpainted hives in use which have sun-cracked and opened in all directions, and the bees fly out practically anywhere they like. Visitors say, "You need new hives badly."

Well, last season I discarded several hundred of the old fellows, and put in some new painted tight good hives, and the bees in them are not coming on as well this spring as the others in the old ventilated hives. Nearly all of my hives are standing out in the sun, and in summer it is a mighty hot sun. The bees fan at the cracks of the leaky hives, and keep them much cooler than the new hives can be kept. Always remember that all my new hives have tight bottom-boards, as I find them more handy to move about than the loose ones. Going into winter the old leaky hives look bad;

but the first cold snap finds all the leaks closed up tight with propolis.

The spring here is a bad one. We had plenty of rain through the winter, and the first few days of spring opened nice and warm. The bees in the old hives tore down the propolis, and were flying beautifully when suddenly a cold snap came, and I could not help smiling when I saw how quickly the bees fixed all the propolis joints again. Do you see the point? The bees can regulate the ventilation. Mind I am talking about strong colonies. If the bees are weak when going into winter they will require assistance; but with really good queens, and provided you do not strike the Isle-of-Wight disease, or any of his cousins, your bees should not go into winter quarters weak.

Now, what are the objections to leaky hives? The bees fly out at you when at work—that is if they are savage or badly handled. The hives will not stand moving about or else take a lot of packing, and they look unsightly. They are not so easily protected against robbers; but if you have the right breed of queen you need not fear robbers.

The breed of queens comes in again with regard to loose vs. tight bottom-boards. I used the latter up to twelve years ago, then I changed all my hives to the former, and I am now going back to the tight ones again.

The merits claimed for the loose ones were: Easier manipulation; easier to clean; and the hive more easily ventilated. Now, if you have the right kind of queen you will never have a dirty bottom-board; and I think that a colony that will not keep the bottom-board thoroughly clean is no good. My queens are not that good; but they were once, and I am doing my best to get them back to that standard; but I am not having much luck so far.

Now with regard to manipulating. I rarely need to lift the brood-nest and put another under it. Take the Alexander method of increase as an instance. He says, find the queen and put her on one frame of brood in another hive. Well, I don't. I go to the hive, lift all the frames out but one, shake off the bees, fill up the bottom-box with frames of foundation or combs, and put the excluder on. I put the brood into a top box, and put it on over the excluder. Looking up the queen is a lengthy process. My method is not. How would a loose bottom-board help me?

Suppose you find that your queens persist in laying above the brood-nest; then you can change the bottom for the top, and you can come around later and repeat the process; but you can do a lot better by pinching the queen's head off and getting a better strain; because a good strain of Italians will not lay above the brood-nest. The objection to lifting the brood-nest is that it is full of good worker combs, and the chances are that no other story is *all* worker comb.

To sum up, I say that, with the right kind of queens, the brood-nest need not be interfered with from one year to another.

S. Woodburn, N. S. Wales, Australia.

THE WHITE-FLOWERED GOLDENROD

Solidago Bicolor

BY JAMES S. JOHNSON

This plant is a perennial. It grows from six inches to six feet high. It has from one to twenty hard woody stalks in a bunch. It is known by different names, such as stickweed and farewell weed during the latter part of the summer, but its real name is goldenrod. It is spoken of in the A B C and X Y Z of Bee Culture as being very scarce; but it grows here in abundance. It comes up early in the spring, and grows during the whole season, and begins blooming about the 10th of September, remaining in bloom about two months regardless of the weather conditions. Frost will not kill it. The main stalk begins some distance above the ground to branch out in every direction, and keeps subdividing at every leaf until it comes to a very fine point. Small silverlike flowers are found near the top. The nearest ones to the ground bloom first, and so on up until the topmost one has blossomed.

This plant will grow on any kind of soil, rich or poor, wet or dry, clean or filthy. It grows along country roadsides, in fence-corners, thickets, on stony land that is too rough to cultivate, in meadows and pastures. All of our land seems to be seeded to it. When we fail to plow a piece of land one year, the next season it has a good set of the plants. When it is in full bloom one can not look in any direction without seeing the snowlike flowers.

The seed-receptacles are first filled with a down-like fuzzy substance which is fastened to the very small seed. About the first of November these seeds loosen, and are carried away by some breeze. Many are scattered great distances. Nature has arranged the seeds with this downy fuzz in order that they may be disseminated everywhere.

This plant is not obnoxious. It makes a good early pasture for any domestic ani-

mal. It is as early as red clover, and lasts all summer if not grazed too close. Meadows are mowed before it gets hard, and it makes good hay. It is especially good on land where it is liable to wash. It may be gotten rid of by simply plowing or by being used for grazing purposes.

As a nectar-producing plant its equal is not in this country—not so much on account of the nectar it produces, but coming into bloom so late in the season it causes the bees to breed up, and also supplies winter stores. I sometimes get as much as 50 lbs. of surplus honey from a single colony from this source. A nucleus will also make enough to winter on. It would make you smile to see the golden sheets of honey in my apiary. The honey seems to be good for wintering bees. The honey is of a yellow color, having a good body with a very pleasant flavor. When bees are storing this honey one can detect the odor several rods away.

This plant has not been in this country more than fifteen or twenty years. I can remember well when it came here; but to-day it has a firm hold, and seems to have come to stay.

In the spring of 1911 I had nine colonies of bees—two blacks and seven Italians. The season was good, my bees soon became strong, and I had six swarms. I formed four nuclei. All told, I had fifteen full colonies and four strong nuclei on the first of September. The full colonies had two supers on each one. About Christmas I took one super of honey from each, and left one full super and a full brood-chamber to the bees. Last winter these bees all came through well and were strong in the spring.

On the first day of May, this year, I had my first swarm from fruit-bloom and locust flower. Now, at this point all of these supers had become full of brood, bees, and honey; so I gave each hive another super by lifting the one they had on, and placing the empty one beneath. In a short time these supers were full of honey and brood, while in the mean time they kept swarming until I had saved 37 swarms, and several good swarms had gone to the woods. I then made some increase by the nucleus plan, which made in all 65 full colonies by the middle of July.

The flow of nectar then began to slacken somewhat. Each hive was full of bees, brood, and honey. All of these young colonies were in single-story Danzenbaker hives. They were all rousing colonies; but at this point each bee became a boarder, and by the middle of August 27 colonies had used up their stores, and were without food. Still these queens kept on laying. I fed these bees until the goldenrod began to yield nectar. To-day all of these colonies have about three frames of honey and about one frame of bees. I should be glad if some one would give a plan for managing such swarms in this locality.

I have had Italian bees for three years. I find that they are more prolific than the blacks. My old hives that had supers of honey left on them are strong in bees.

SOME FACTS ON WINTERING BEES.

I find by experience that several things may figure in successful wintering. To start with, I don't believe that bees ever freeze to death when given proper surroundings. Bees, while clustered, can withstand any amount of cold, other conditions being favorable. I will name some of those conditions:

1. They should be kept dry.
2. They should have an abundance of air.
3. They should have plenty of good stores.

The quantity of bees does not matter so much, but there should be young bees with a young vigorous queen. If a colony is to be kept dry, the hive should be well covered by outside protection from rain, snow, and the like. This can be done in several different ways. A good cheap way for me is to take clapboards about 2½ feet long; nail them to lath at each end; use enough to make a cover about 2½ x 2½ ft. square, and lay a brick or stone on top of the hive to give slant to the cover. This will make a good outside cover. Water should never be allowed to fall on the hive, as capillary absorption will take place during snow-melting or rain, and wet the cluster of bees and the packing. This dryness is one of the main essentials.

The amount of air a colony of bees should have is no longer a question with me. In the summer time bees use their wings for this purpose; but bees in their winter nap breathe slowly, like hibernating animals, and need to have plenty of air. Bees should have a larger entrance in winter than in summer. This question ought to have been settled long ago for there has been enough said along this line. I prefer an entrance one inch by 12. This will do, but should be larger.

I want to refer to GLEANINGS for Sept. 1, p. 561. The way Mr. Albin Platz packed his bees seems to be all right to me except that, as he used sealed covers, he should have given his bees a larger entrance. He came very near killing them by suffocation. If air is essential to bees they need all that

nature furnishes. Bees do not need cold, but they need the oxygen that is in cold air. If Mr. Platz will take another hive, like the ones he referred to last winter, and pack as he did, either with sealed covers or absorbents, and give them lots of air, they will winter well. The absorbents he refers to gave his bees more air, hence the better results. A colony of bees with a large entrance, and well protected from outside dampness, will never have any accumulation of moisture on the outside.

Langnan, Ky.

LAW ON SELLING HONEY FROM DISEASED APIARY

Feeding Syrup in the Cellar

BY J. D. ROBINSON

1. The Michigan foul-brood law as it stands at present (see Sec. 4 of Article 66 of the Acts of 1901) reads as follows: "If the owner of a diseased apiary, honey, or appliances, shall knowingly or willfully sell, barter, or give away any bees, honey, or appliances, or expose other bees to the danger of said disease * * * * said owner shall * * * be liable to a fine of * * * * etc." Question. Under such a law what can the beekeepers of Michigan, who have foul brood, do with their honey?

2. This spring we purchased a large number of Danzenbaker supers for plain sections (4 x 5) with fences, etc., complete. Our crop was too small to judge definitely; but from several hundred pounds produced in these sections we anticipate difficulty in getting them full enough to weigh 13½ ounces. Supers would be well filled and capped, but scarcely a section would reach the 13½-ounce mark, and none above that. Now, as the honey in every other respect would fill all the requirements for "Fancy White" under the new Colorado grading rules we should like to ask: (a) What per cent of sections should reach this weight? (b) Is the trouble with the honey (raspberry and clover principally, gathered during dry weather)? (c) Was the trouble possibly with the apparatus or the manipulation? (d) Do others have the same difficulty to complain of?

3. On account of a poor summer and fall flow, some of our colonies had to be fed. The weather turned cool, and much of the syrup fed is not capped. Will this unsealed syrup in the combs spoil? We may say our cellar is dry and well ventilated, which we assume is in favor of keeping stores.

4. In spite of precautions and feeding several colonies, probably a dozen or so have not to exceed ten or fifteen pounds of stores. Can they be fed syrup in the cellar?

As a note to question one, I might say we are thankful that as yet no foul brood exists in this county.

Pellston, Mich., Nov. 25.

[1. If we are correct, the intent of the law is to prohibit the selling of honey from foul-broody hives to beekeepers to whose bees the disease might be transmitted. We know it has been customary to sell such honey to honey merchants for *human* consumption, for it is, indeed, as good as any. If such selling is prohibited under the law, it will be difficult to prove violation. If the law does prohibit all selling of honey from infected apiaries it might nearly bankrupt the beekeeper who has 50,000 lbs. of honey to sell. If he boiled it to kill the germs of foul brood he would cut down the selling value of it from a fourth to a third. The reduction in price might represent his actual profit. We do not know of any case in the United States where any beekeeper has been prosecuted for selling honey from an infected apiary to a honey merchant. Any beekeeper to-day who buys any honey to feed his bees is running a great risk unless he knows the exact source of it. Honey that goes into the hands of a commission man or honey merchant is intended for human consumption. If it goes to the baker or confectioner the very process of cooking would render it immune.

2. Sections that do not weigh 13½ ounces would, according to a literal construction of the Colorado grading rules, be barred from the "Fancy" white and No. 1; for these grades clearly call for a section weighing not less than 13½ ounces. A "choice" grade would permit of a 12-ounce section. According to the Eastern rules, the honey described might be sold as "A Fancy." The consignee should then be advised that the grade is according to the Eastern rules. See page 2 of our advertising section. *a.* No section under 13½ ounces is allowed. *b.* The light weight was probably due to a premature shutting-off of the nectar supply. *c.* It may or may not, but probably not. *d.* If the season is fair, no.

3. It is better to have syrup fed early enough to be capped over. In most cases colonies will winter on such syrup, providing, when it is given, it has the consistency of not less than two parts of sugar to one of water. Such unsealed syrup probably will not spoil.

4. We would not advise feeding syrup in the cellar. Give the bees rock candy, or

moist coffee A sugar, such as Mr. A. C. Miller recommends on page 770, Dec. 1.—ED.]

RIPENING HONEY OUTSIDE THE HIVE

BY I. HOPKINS

We all know how strongly the ripening of honey anywhere but within the hive has been opposed at different times; but to any one who has seriously considered the arguments of its opponents they would have but little value, inasmuch as they have not been based on actual personal experience. I have known of only one beekeeper, and he a New Zealander (Mr. Hobbs), who had tried the system and failed. I do not know any of the particulars of his trial. On the other hand, we have direct evidence from men of integrity who have had long experience in ripening honey outside the hive who favor it in every way — men whose truthfulness their strongest opponents will not doubt; to name only two or three, Moses Quinby and his son-in-law, L. C. Root; E. W. Alexander, and T. W. Cowan. Of the few who attended a meeting of beekeepers at Wellington recently, three had experiences, and advocated ripening honey outside the hive, and a proposition to the contrary by one individual was thrown out. What better evidence could be obtained?

THE SYSTEM NOT NEW.

The ripening of honey outside the hive is by no means new. Part of chapter XI. of "Quinby's New Beekeeping," second edition, 1881, is devoted to it. I have also a paper on the same subject by L. C. Root, read before the New England Beekeepers' Association in 1883, in which he speaks of his 13 years' experience, and states in detail all the advantages to be gained by the system. The following is worthy of note, as it has a bearing on the stock arguments of opponents. He says: "We shall claim, first, as regards the quality of the honey, there is no difference as to the time it is extracted. It may be cured (ripened) equally after as before. The only necessity is that it be cured."

My own commencement on a large scale (ten tons of clover honey) dates back to the season of 1883 and '4, and I have adhered to the system ever since with complete success. The late E. W. Alexander's experience is also very convincing, and I think the testimony of a man of his standing in the bee world may be taken in preference to all theories.

RIPENING HONEY.

Until chemical investigation proves to the contrary, I can only believe that the ripening process, whether performed inside or outside the hive, is the getting rid of the surplus moisture usually found in nectar when first gathered, and which, if retained, would cause fermentation. I hold that the bees have nothing to do with it when ripened within the hives, beyond driving off the moisture as it evaporates from the honey-cells, and capping the latter when the process is complete. I think it quite likely that there is a change going on in the sugars during the course of ripening; and if so I see no reason why the same should not go on under any system. Much has been said by opponents regarding the loss of flavor when honey is ripened outside the hive; but this, I feel certain, is all a myth. I could never detect any difference, neither have I known any one who could. I am aware that Dr. E. F. Phillips, in his valuable paper entitled "The Care of Extracted Honey," has stated that "unripe honeys contain a large proportion of sucrose, or cane sugar, and it is probable that, the longer it remains in the hive, the less sucrose will be found in the honey," and also that "the official honey standard allows of 8 per cent of sucrose in honey." The test of well-ripened honey, therefore, seems to rest a great deal on a small percentage of sucrose content.

In this connection I may quote from the report of Dr. H. W. Wiley (late Chief of Chemical Bureau) on two samples of honey sent by me for analysis to Dr. Phillips. Both samples were portions of crops of honey saved under the system I advocate, in the separate seasons of 1909 and 1910. Extract from Dr. Wiley's report: "Sucrose 0.29 per cent" in one sample, and "0.00 per cent" in the other. Dr. Phillips' remarks on the two samples accompanying the report were: "The water content is very low in both, indicating a well-ripened honey, and the sucrose is extremely low, indicating complete inversion."

THE PROCESS.

The system as originally carried out by me, and which I still follow, is very simple, and similar to that of the late Mr. Alexander and others. Shallow tanks are provided. The dimensions are — length, 6 ft.; width, 4 ft. 6 in.; depth, 1 ft. 10 in. A division runs down the center, and each part holds about 1250 lbs.; or 2500 lbs. in each tank. A honey-gate is fixed in each apartment. With regard to the size of tanks, I would limit only the depth. The other dimensions can be left to the fancy

or convenience of the apiarist. I do not advise a greater depth than 24 inches inside. Mr. Alexander found by experience that his tanks of a depth of 36 inches were too deep, and advised 32 in.; but I prefer the shallower tanks I use as time-savers in the maturing of honey.

When ready for extracting, the full combs are taken from the hives, whether partially capped or uncapped, though I like to see the capping just started on the upper parts; but I am not particular in this respect. The honey runs through three strainers from the extractor by gravitation, each one smaller in the mesh than the one above it. When the extracting is finished a specific-gravity and thermometer test is taken and noted. The extracting-room is well ventilated with sliding ventilators overhead, which can be closed if necessary, and the whole outside house is well sheltered, and gets the sun all day. We have an American stove in the house to heat it if necessary. In a couple of days or so all the fine particles of pollen and wax that went through the strainers have risen to the top and formed a thick scum, which, when skimmed off, leaves the honey clear. It is to facilitate this clearing of the honey, and to hasten the ripening, that I advocate shallow tanks.

A further test is now taken for specific gravity, both on the surface of the honey in the tank and of some drawn off from the lower part. We rarely find any appreciable difference. When we find the specific gravity 1.420 or above, we are satisfied. The honey is fit to put up for market. I am speaking of clover honey, which we raise. It may run up to 1.435 or over—the higher the better. As a rule, in bright warm weather the honey begins to get cloudy in about four days or less, showing signs of granulation. Before running it off for market we mix it thoroughly in the tank with a wooden hoe, and take samples in glass jars to test by times, labeling each sample with date of extracting, and specific gravity. We have some samples from the first extracting, nearly seven years ago; and I have before me now two samples nearly six years old, as good as ever. The specific gravity is registered on the labels 1.420, at a temperature of 60 degrees Fahr.

In warm dry weather the honey ripens very quickly, and takes a little longer in damp weather; but having been successful in all seasons I believe there is practically no risk, providing ordinary care is exercised.

LOCALITY.

"Locality," I often think, is a very convenient word for beekeepers. When one of them makes an extraordinary success where others have failed, or failed where others have succeeded, they fly to that blessed word "locality," as sufficient to account for all the difference, though in all probability it lies mostly in the difference of management. Though I believe that extreme difference of temperature and rainfall may make some difference in the time that it takes to ripen honey, both within and without the hive, I do not believe, as some assert, that it can be done in the one case and not the other. In this connection I thought it worth while to collect for this article the mean summer temperature and mean rainfall for the different parts of New Zealand, where I have successfully ripened honey outside the hive.

MEAN SUMMER TEMPERATURE, FAHR., IN SHADE.

Auckland	65.7
Wellington	62.1
Canterbury	60.8

MEAN ANNUAL RAINFALL IN INCHES.

Auckland, for 58 years	43.28
Wellington, for 53 years	49.91
Canterbury, for 34 years	25.34

I think, Mr. Editor, I have now covered all this ground necessary to support my side of the question, but I shall be only too pleased to hear arguments on the other side, provided it is based on experience and their process fully explained.

Before closing I may mention that my reason for bringing the hydrometer into use in testing the specific gravity of honey was to work out some simple scheme by which the average beekeeper might ascertain when his honey was fit to put on the market without risk. I carried out about 150 tests, all of which were with what we could call clover honey, and I concluded with the result given above.

With regard to the advantages of the system I advocate, they are very many; but I must refer my readers to Alexander's writings and L. C. Root's paper for details as this article is already too long. It has been said that I stand alone in this matter in New Zealand; but this is contrary to fact, though that would make no difference to its advantages nor to me.

Auckland, N. Z., Nov. 6.

[We solicited the above article, and are glad to place it before our readers; but at the same time we wish to add a word of caution. As we have mentioned before, there has been a large amount of thin unripe honey thrown on the market—in this country at least. This fact does not prove that honey may not be ripened artificially, but it does show conclusively that the plan of extracting honey from combs not at least two-thirds capped over, and taking no par-

ticular pains to ripen it afterward, is to be deplored. And we wish to say further, that, *in our opinion,* ripening honey artificially is a task for an expert, and one that ordinarily should not be attempted by the average beekeeper. There has been so much unripe honey on the market that we believe it unwise to recommend a cheaper method of producing that *may,* unless great care is used, lower the quality of the product.—ED.]

BEEKEEPING IN THE SOUTHWEST

Poisoning with Arsenate of Lead

BY L. H. SCHOLL

(*Continued from page 791.*)

Having had varied experience in cotton spraying and dusting during my position as apiarist and assistant entomologist of this State a number of years ago, I think that serious trouble from the above source can be abated to a great extent. Together with my younger brother, entomologist of the Texas Department of Agriculture, I think we can devise a means by another year that will protect the beekeeper, at least to some extent.

We have found that simply dusting the cotton-plants either with Paris green or London purple does not materially affect the bees. Especially so is this true if the poison is applied by the "sack and pole" method, in which the major portion of the poison drops on the plant and the wide leaves, and very little reaches the nectaries under the bracts of buds and blossoms and the under side of the leaves. At the same time this is the most economical and effective method.

The application of liquid sprays, such as arsenate of lead, requires expensive machinery, heavy hauling of the liquid, and much more labor. While the spray reaches every part of the plants better, which makes it so serious for the bees, this is not necessary, since the poison is needed at the very tops of the plants where the cotton-leaf worms do most damage.

Just what procedure to follow we can not say at the present time; but it seems that, where poisoning becomes necessary, it will be well to educate the people toward dusting their cotton-fields instead of using the more expensive methods of spraying liquid poisons that are disastrous to the beekeepers who may be in the neighborhood. As matters develop, further reports will follow.

New Braunfels, Tex.

[The following letter from our English correspondent suggests that other causes may account for the death of the bees; but in the above case, at least, the spray used on the cotton-plants seems clearly to blame. See also the statement by R. B. Slease, on next page.—ED.]

POISONED BEES

Is the Poison Always to Blame for the Trouble?

BY G. W. BULLAMORE

From time to time there appear in GLEANINGS and other journals accounts of heavy losses of bees from the spraying of fruit-blossoms. Although I am quite satisfied that a bee can not drink solutions of sulphate of copper or arsenate of lead with impunity, I do think that this explanation of losses is somewhat overworked. Losses which are similar to these are known to occur when fruit-spraying can not be blamed. In England, spraying with sulphate of copper is sometimes used to check the growth of charlock or wild mustard in cornfields. This action has been freely blamed for some of our heavy losses. Artificial manures, and the dust and fumes from motor cars, have also been mentioned. In the absence of any human agency, Nature is accused. Poisonous nectar and frosted pollen are the agencies which she is supposed to employ.

In an account of the Brazilian bee plague, quoted by Professor Zander, it is stated that some of the beekeepers attribute their losses to nectar gathered from goldenrod. Zander also quotes a letter he received concerning losses in Germany, and in it occurs the following passage: "An old beekeeper thinks that when, in spring, artificial manures containing so much salts are spread on the maodows, there is no more luck. The bees take the salt fluid and perish of it. For four or five years he has had this experience with his best stocks, just like me. Another beekeeper thinks it is an infectious disease in the place."

Heavy losses in New York were attributed by some to the pouring of mineral oil on the marshes in the crusade against mosquitoes; but others preferred to blame the spraying of fruit-trees.

Dzierzon gives the following description of vertigo:

Toward the close of the fruit-bloom, which is a very critical time for bees, Nature appears often to prepare a poison for bees, so that in this district we often find at this time, in the hive and outside, a quantity of bees, mostly young, struggling with death. Whether the bees carry in the poi-

son from the mountain-ash, from the crowfoot, or the apple, which bloom at this time, or whether it is a consequence of some night frosts occurring, has not yet been established.

About fifty years ago English beekeepers were experiencing very heavy losses, and the press of the day contains letters on the subject of poisoned bees. One writer expressed his difficulty in attributing his losses to the malignancy of a neighbor, because he knew of no enemy. In another case the editor suggests that a microscopical identification of the pollen in the baskets of the dying bees might throw some light on the subject.

Berlepsch describes a *disease* of bees which ravaged South Hanover in 1859, and says, "Many hives were one day healthy, the next morning half were dead, and the next day all were dead. The disease appeared in many places about Easter, and in many not till Whitsuntide. It was similar to human cholera, and ravaged whole neighborhoods."

The fact that such losses coincide with the flowering of fruit-trees lends countenance to the view that there is a connection between the spraying and the deaths of the bees. It is, however, difficult to imagine a disease of adult bees in which death following the loss of the power of flight was not the chief symptom. Such a symptom must also arise as the result of bad food, poisoned food, or lack of food, and therefore can have very little diagnostic value.

When a stock loses a large number of adult bees they must either die in the hive, in front of it, or away from it. These differences may be influenced by some factor such as temperature. Yet we find them used to denote three separate troubles, viz., fall honey, paralysis, and spring dwindling. As an alternative explanation we find that fruit-tree spraying is put forward. The latter assertion is seldom accompanied by the evidence that any good analytic chemist could furnish; and until it is usual to obtain such evidence there is grave danger that a serious disease of adult bees will be disseminated by stricken beekeepers who remove the remnants of their apiaries to other localities.

Albury, Herts, England.

EXTREME REPORTS DO HARM

BY R. B. SLEASE

I have noticed what the editor has had to say about taking newspaper reports. Hereafter I think it will also be wise to "use a little salt" with some reports from beekeepers. I have noticed several very unreasonable reports as to honey crops; also as to the amount of work to take care of bees. Now, out here people generally think a beekeeper has nothing to do but to sit in the shade and sell honey, and that he is just robbing the people by charging 8 1-3 to 15 cents per pound for honey; and it is not much wonder when right in GLEANINGS this year there have been reports of bees making an average per hive of considerably over 100 lbs. of honey in the short space of 10 to 14 days. Then, too, some of our leading beekeepers have made statements to the effect that it takes only two or two and a half hours to take care of a hive of bees a whole year.

Now, such reports as these may be substantiated in a very few places, possibly, but very improbably, and in New Mexico it is impossible. They are misleading, and do the bee business as well as the beekeeper a great injustice. At that rate a man could make a fortune in four or five years, and retire, when in reality he must get up and hustle, and then scarcely more than make a living. I hope in future beekeepers will be a little more careful about such statements; but if they are not, I hope the editors will be.

In answer to H. H. Root's inquiry as to how many beekeepers stack comb-honey supers three high, I will say I use from one to six, but mostly two, three, and four.

Beekeeping is badly demoralized in Pecos Valley, from the heavy loss caused by spraying fruit-trees in bloom last spring.

Roswell, N. Mex., Nov. 6.

WINTER FEEDING AND WINTER FEEDERS

Many Colonies in Danger of Starvation this Winter Because of the Shortage of Fall Honey

BY OREL L. HERSHISER

There seems to have been almost a complete failure of fall honey throughout the eastern States and eastern Canada for the season just closed. In many of the best buckwheat locations no surplus was secured, and goldenrod and other fall flowers yielded only enough to keep up brood-rearing. As the honey season closed, the bees were found to be badly lacking in the necessary winter stores.

In conversation with numerous beekeepers at the convention of the Ontario Beekeepers' Association at Toronto recently, it was surprising to learn that every one with whom I had talked on the subject had fed heavily. Purchases of sugar by the ton

had been a common occurrence, and one successful beekeeper reported his bill for sugar at about $600. One expert beekeeper lost several colonies from starvation before he discovered how short of stores they were, and he found it necessary to feed nearly 30 lbs. of syrup to each colony.

Most of the bees that need feeding are fed during the warm weather of fall; but for those who have been so unfortunate as to overlook the matter at an earlier date some simple directions for winter feeding and a description of winter feeders may be helpful.

In some respects, late fall and winter is a better time to feed than earlier in the season. After all breeding has stopped, there is no brood to consume the winter stores; after the bees have settled down for winter no precaution against robbing is necessary; and with no brood in the hives a better estimate of the food required may be made. Moreover, the last food stored will be the first to be consumed by the bees. This last point is especially important in view of the fact that granulated sugar syrup has been found to be superior to the best honey as a winter food for bees. The late fall feeding of granulated sugar syrup places the best of winter stores where they will be consumed during the most trying of the wintering season.

Winter feeding can not be successfully accomplished with any feeder where the bees must move far from the cluster to reach the food. Hence the division-board feeder, or a feeder on the bottom-board, or beneath the hive, or any feeder over the cluster where the bees must traverse a space of several inches to reach the food, will not answer. In cold weather the bees of a strong colony can hardly be induced to go over the edge of a shallow pie-tin to reach the food. The only feeder that answers every requirement for winter use is of the pepper-box-feeder type in which the food is brought right against the cluster. Where it is necessary to feed rapidly and in considerable quantity the ordinary pepper-box feeder is too small; but it is an easy and inexpensive matter to improvise one out of a ten-pound honey-pail or a ten-pound lard-pail which will contain 14 pounds of sryup. All that is necessary to be done is to punch about 100 holes in the lid, each about the size of the lead of a pencil, and evenly distributed over its surface. After the feeding is done the pails may be used for honey, and the only expense of the feeder will be an extra cover—perhaps about two or three cents each.

The feeder, being stocked with the required amount of syrup, is inverted over the cluster of bees. The feeder should rest on a couple of ⅜ strips of wood to allow the bees to reach all the holes in the cover of the feeder. It is obvious that the food is brought so near the bees that they scarcely need to break cluster to reach it, and that they store it right where it is available for immediate use. The act of inverting the feeder should be done over the cluster so the escaping drops of syrup will fall on the bees, which will encourage them to commence taking the food. A quilt should cover all portions of the top of the combs and frames. A hole should be made in the quilt directly over the center of the cluster over which the feeder is placed. It is necessary that the feeder rest in a level position. If much out of level, air may find its way through the holes at the highest point and force the syrup out too fast. The syrup should be fed warm. If fed hot, greater care is necessary in leveling the feeder. The bottom-boards of most hives are propolized so they are syrup-tight; and if the hive is tipped back, any syrup that finds its way to the bottom-board will not be wasted, but will be stored by the bees when they become thoroughly roused up by feeding. If the weather is unusually cold when the feeding is done, packing of leaves, chaff, or shavings should be placed over the quilt and over and around the feeder.

Bees may be fed in this manner during their confinement in the cellar as well as out of doors.

The syrup should be made of the best grades of granulated sugar. Use two parts sugar to one part water, by weight. Bring the water to a boil and stir in the sugar, after which bring to a boil again. The addition of a teaspoonful of tartaric acid to fifty pounds* of sugar is said to be effective in preventing granulation. This is very desirable when feeding at any time of the year, and especially when feeding with the pepper-box type of feeder, as granulation would speedily cause the holes in the cover of the feeder to be filled, and render the feeder inoperative.

Fruit-jars may be used for feeders in a manner similar to the feeder above described. Fill the jar with syrup, and secure a piece of cheese-cloth over its mouth by screwing the rim of the jar down over the cloth or by tying the cloth in place with a string. A board of a horizontal dimension that will allow it to be placed within the super or hive body, or in any event over the

* The usual directions call for a teaspoonful of tartaric acid to 20 lbs. of sugar. Perhaps one in 50 is enough.—ED.]

frames of the hive, with a round hole cut therein that will just admit the neck of the jar so that its shoulder will prevent its going further into the hole, is a convenient device to use in feeding with fruit-jars. Several of these holes may be made in the board, and as many jars of syrup be fed at the same time. The board should be raised above the top of the brood-frames by means of cleats on the under side so the cheesecloth covering of the jars will be separated from the tops of the frames by a space of ⅜ inch.

It is usually estimated that from 25 to 35 lbs. of stores, depending on the strength of the colony, is an abundance to carry it through from the time bees settle down for winter until they can gather honey in the spring, which is usually not before the middle of May. In winter feeding, some deduction may be made from the total amount of food required for the full wintering season, allowing three or four pounds per month for the time since the consumption of winter stores began. It should be borne in mind that, during the cold weather when breeding is not in progress, bees consume the least stores.

If the above hints are instrumental in saving a few colonies of bees, the writer will be greatly pleased.

Kenmore, N. Y., Dec. 3.

[To this timely article we would add just one word of caution. As a rule, feed in the late afternoon so that the excitement may not cause the bees to fly out when it is too cold.—ED.]

BEEKEEPING IN JAMAICA

How Bees Fared During Nine Days of Rain

BY F. A. HOOPER.

It may be a little interesting to readers of GLEANINGS to know how bees fared through nine days of torrential rain with a southeasterly wind blowing at the rate of 25 or 30 miles per hour during the whole time it rained.

October went by with very little rain. The rivers were low, and our ponds and tanks were not nearly full enough. I feared another drouth like that which crippled the last honey crop. On Sunday, November 10, there was a grand electrical storm which was seen throughout the island, and the rain came down in torrents. A strong southeasterly wind then set in, bending down the trees in the apiary; and the swaying of the branches knocked several covers off the hives. I then found it necessary to place heavy stones on each hive to keep the covers from blowing off. On Monday the rain was somewhat heavier, so I thought it best to feed all the colonies in the yard. I then fed over 250 colonies with about 6 lbs. of muscovado sugar to each. I wrapped the sugar in thin paper parcels, then braved the driving rain and wind, and succeeded in getting in a parcel of the sugar. The most difficult task was in taking out two frames from each super to get in the sugar. It took myself and a lad several hours to get through the feeding, all except about a dozen colonies which we were unable to feed, as we were getting cramped from being wet so long. On returning to the honey-house a neighbor advised me to take a "Johnnie Walker" as a precaution against a cold; but as I do not indulge in whisky, a hot cup of our native cocoa answered the purpose.

On Tuesday, the 12th, there was no abating in the rain and wind, and I feared the other three apiaries were being hard hit, so I ventured out and managed to feed two of them, with the exception of about half a dozen colonies in each yard. I will allude to these unfed colonies later.

The fourth apiary, which I look after for my son-in-law, I could not visit until Saturday, the 16th. This apiary is situated near the seacoast, where there are vast tracts of mangrove. This one was not fed, so I lost a good number of colonies. Fortunately the stands in this apiary are two feet six inches high or the bees would have been drowned, for the water was two feet deep in the apiary. I had much trouble in overhauling the bees, standing in water all the time. I found all the colonies dead which were short of honey—about 24 in number. It appears that, when the bees consumed all the honey in the hive, they ate freely of the pollen, which gave them diarrhea, for the bottom-boards were smeared with the pollen, and had an offensive smell. Every bee was dead in those 24 hives, and piled up on the bottom-boards. But in three of the colonies that died I found one solitary bee in each, and that one was the queen.

The weather now getting to be too boisterous to be far away from the home apiary, I made tracks for Clarendon, where the home apiary is situated, taking the 5:15 P. M. train from Old Harbour station. I arrived at 6 P. M. It had not ceased raining in my absence, and the wind was getting stronger. Sunday, the 17th, the wind and rain were just as bad. I glanced at the entrances of all the colonies at the home apiary, and found five had died while I was absent. These were the ones I did not feed.

Continued on page 815.

A NEW WAY OF DEMONSTRATING WITH BEES AT FAIRS

Success in Spite of Misfortune; How One Man has been Able to Look on the Bright Side, even though Crippled for Life

BY L. RIEBEL

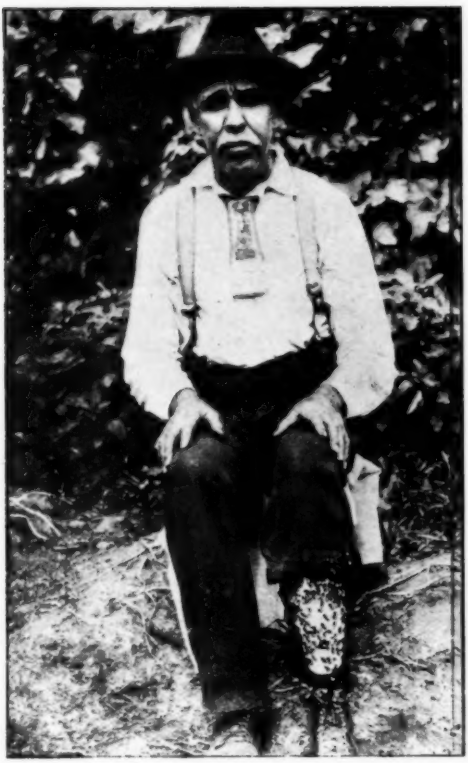
Just thirty years ago, on the morning of December 15, 1882, I was helping a neighbor move a house. Through a little carelessness on the part of the man who was managing the affair, and having a bad place in the road to get my team across, I slipped, and the building caught my left foot and broke the large bone just above the ankle. I was taken home at once and the doctor called, who visited me every day for over a week. This doctor did not understand his business, however, on account of using too much liquor, as I afterward learned; and my leg, not getting along as well as it should, had to be amputated on Christmas afternoon. If I had known then what I know now I would not have needed a doctor at all, and that thigh amputation would have been entirely unnecessary. As it was, I have been a cripple all these years, just because of one man's mistake. Doctors generally bury their mistakes, it is said; but it seems that they do not always do so.

About a year after my leg was amputated I placed my order for an artificial limb. The manufacturer of it did not wear one himself, neither did any of his employees; but he had a nice working model with springs and cords; and to hear him tell about it one would think that it only had to be wound up, when it would walk off almost by itself. However, when I got it I was very much disappointed, for I could not use it with any kind of control. It pained me all the time, had no knee action, and was a dead drag continually. I knew then that I had lost my hard-earned money, and had worse than nothing for it.

L. Riebel, Chariton, Iowa, with a set of his combs which he uses in his demonstrations at fairs.

I have tried many of the makes of artificial limbs with wooden and leather sockets, but never found any relief. By this time I was becoming skilled in leather-work of all kinds, having taken up the harness business; and as I was a sort of ingenious fellow anyway, I commenced over 25 years ago to manufacture a leg of my own that would fill all the requirements. For a year I kept studying and experimenting, and finally hit on the plan of using an air-cushion and other new features until my leg was a complete success.

During my work in the harness-shop I became interested in bees. My father always kept bees in an old-fashioned way, never realizing much out of them, nor giving them the proper



A colony of bees in a wooden leg.

care and attention; but I became so interested that I read and studied every thing I could find on bees. I was soon making beekeeping a specialty, along with the manufacture of artificial limbs for others; and I was all the time experimenting and making observations. I had an observatory hive in my work-shop, the bees going in and out through tubes in the wall of the building; and from my work-bench I have watched them building comb, rearing brood, depositing honey, etc. During the last few years I have been giving some attention to the matter of demonstrating beekeeping at fairs; and I conceived the idea of having bees in the hollow part of my artificial leg. The various photographs show how I rig myself up for fairs, and I can tell you that I attract a lot of attention. I also make demonstrations in a wire-cloth cage, and I have a good many different operations that I go through with in order to explain various parts of the business. For instance, I explain how to take a colony out of a tree, get the bees into a hive, etc., so that the whole plan is perfectly clear. I often let the bees sting me on the face all day, and it has practically no effect. I have the bees on my head, under the hat, in the specially constructed headgear, and then in my artificial leg as shown. I often go about in this way at fairs from six in the morning until nine o'clock in the evening.

Chariton, Ia.

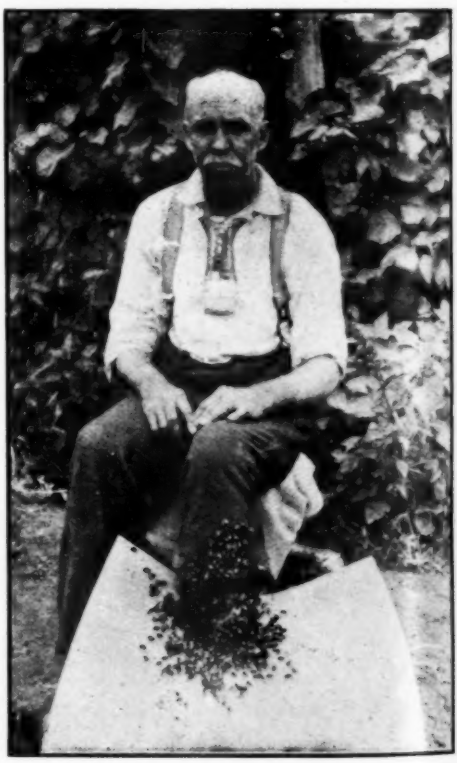
[Mr. Riebel is certainly a genius in more ways than one. He has made such a study of beekeeping that he has published a small book on the subject, "Hints in Bee Culture," which we find is very interesting. We are sure our friend deserves a good deal of credit for forging ahead as he has done for thirty years in spite of so great a handicap.—ED.]

BEE-VEILS AND BEE-VEILS

BY ARTHUR C. MILLER

A bee-veil is a necessity and a nuisance, only some of them are more so. There are almost as many kinds of bee-veils as there are beekeepers, but often none are to be had when most wanted.

First, there are the kinds made out of sundry yards of white mosquito netting, hung in voluminous folds over a prehistoric



Hiving the swarm in the very novel hive.

straw hat. These are very effective in their way. No self-respecting bee would be seen near one, and no beekeeper can see any thing that he wants to see through one.

Then there are the kinds made of near-black netting, sewed to the rim of a once-was felt hat. Crown and rim form a cone very suggestive of the classical dunce's cap, and one does not wish to meet his best girl when he is arrayed in it. Incidentally, hat and net have a musty, tomb-like odor, and through one's mind there drifts all the stories of the fatalities from stings.

Then there are the dinky little pocket affairs which are too small to go over your hat brim, and which blow softly against the back of your neck, while a few dozen vicious hybrids take the occasion to roost there. Perhaps you have had a few experiences like that, so you buy one of those bird-cages built on to a pretty brass collar, and after you have stretched the net over it you lay it down on a convenient hive top while you light the smoker. When that is well going you hurry into the veil, only to have the brass band, which has been quietly heating up in the sun, raise a lovely red welt on the side of your neck just where it will show nicely above your collar at the reception this evening.

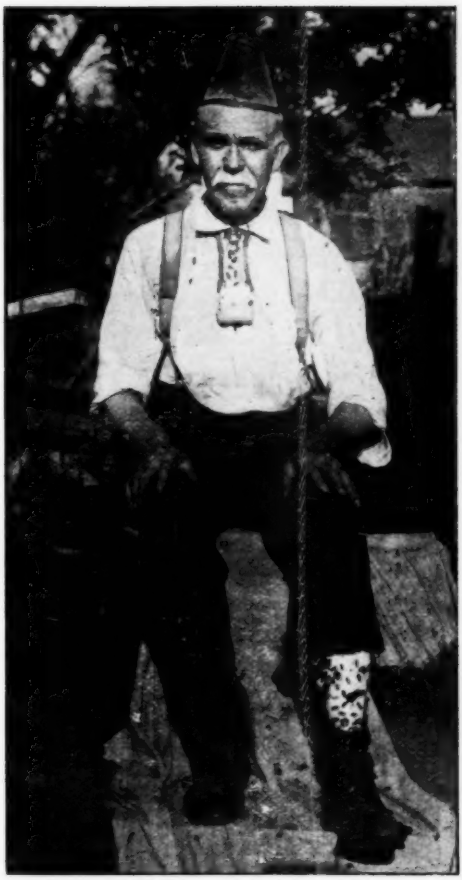
But you will make one of wire cloth, and be rid of all those troubles. After you have dulled your wife's best scissors cutting out the wire, have pricked and scratched yourself with its sharp points, you finally get her to sew it together for you, and to fit into one end a disk of white cloth, and on the other end attach a petticoat to tuck under your collar. There! That is fine! But a glance into the mirror dispels some of the joy, for you look as if you were in a short section of aerated stovepipe. Anyhow, it will keep the bees off. Um, yes, it does, on the off side, but the "nigh side" of it has tipped against your ear, and an alert bee has pierced the lobe, and ear-rings have gone out of fashion for men, except with a few ancient mariners.

Oh! well, make another then. Try a shorter tube, and sew it to the stiff brim of last summer's straw hat. Ah, that is fine. "Is that a swarm 'way up there?" You tip your head back and see—the inside of your straw hat.

Darn a veil, anyhow!

But there are veils and veils, and it is not necessary to make one's self look like a scarecrow or some oger-dispelling monstrosity devised by a superstitious heathen, nor to subject one's self to sundry tortures and annoyances.

Many years ago the writer adopted a type



Bees in wire-cloth hat, neck-tie, and artificial limb.

of veil which was the result of slow evolution, and which has, in its many years of use since, proved itself as satisfactory as any bee veil can; for mere man will never enjoy a veil for a veil's sake. The foundation, which is at the top, is a duck "beach hat," white or brown. Theoretically, white is cooler, but brown—"kahki color"—does not show the dirt so easily. To the rim of this is sewed a strip of wire cloth, and depending from the lower edge of this is an ample skirt of brown cambric or silesia. This sort of cotton cloth is used in preference to the commoner and more fuzzy kinds, as bees do not catch their toes in it and trip and fall and lose their temper. But the wire cloth part of the hat is really the "whole thing"—at least it may seem so until you try to use some other sort of hat as a foundation, or some other sort of cloth for the skirt.

First, buy your hat—it is better to buy it than to borrow it or steal it, and of course

Arthur C. Miller's bee-veil.

no good beekeeper steals—he leaves that for his bees to do for him. When you go to get the hat, have your hair cut afterward, not before, or else be sure you get one—a hat, not a hair—which is plenty big enough, for duck hats will shrink, particularly after they have been left out in the rain and dew for a season or two. While you are waiting for it to shrink to just the right point, you have a piece of felt, cloth, or folded strip of paper in behind the sweat-band, and later remove this when you get the swelled head or the hat shrinks.

Take the hat home, and also take a strip of wire cloth long enough to go away around the hat-brim and two or three inches more. If your credit at the store is good, get the "bronze" or "copper" wire cloth. It is better than the painted in several ways. When new it glistens and bothers the eye a little, but soon dulls down, especially after you have left it out in the dew a few times.

Having the wire cloth, cut it like this:

The narrow ends are about three inches wide. For a distance of about eight inches in the middle it is eight inches wide. Now the edges are to be hemmed—that is, have a narrow strip, say a quarter of an inch, folded over and flattened. Preferably the long straight edge should be the selvedge, and not hemmed. To fold the hem readily, clamp the edge between two sticks, as laths, and bend to right angles, then bend the rest of the way with the fingers, and hammer flat. Or, better still, stop in the tinshop and let the tinsmith do it in his sheet-metal folder.

Now if you want the rest of the work well done, get your wife to do it, unless perhaps your good mother taught you how to use a sewing-machine.

To the bottom edge of the wire cloth—that with the double slope—sew an amply full and long skirt of brown cambric, letting its folded edge cover the points of the turned-over part of the wire cloth. A double row of stitching, one above and one below the points, and having this on the inside when it is attached to the hat, will give a neat appearance and a smooth finish.

To attach the wire to the hat is easy if begun properly. Start in the middle of the straight edge, and put this spot at the middle of the front of the hat-brim. Stitch around to one end, then go back to the middle and stitch around to the other. The ends will lap a little, and fastening these down is more easily done by hand.

Use the stiffest needle possible, and for thread use strong linen or silk, and preferably use a double row of stitching.

A hat thus made sits comfortably on the head, stays in place, permits freedom of movement, and allows a free circulation of air. Made as described, it is durable and looks as well as such things can.

But—you will have a more pleasant time if you keep decent, good-natured bees, and dispense with a veil altogether, or almost.

Providence, R. I.

THE SPOKANE INTERSTATE FAIR

I am sending you two photographs of exhibits, and a list of awards in the apiary section at the Spokane Interstate Fair.

CHESTER L. MYERS, *Publicity Manager.*

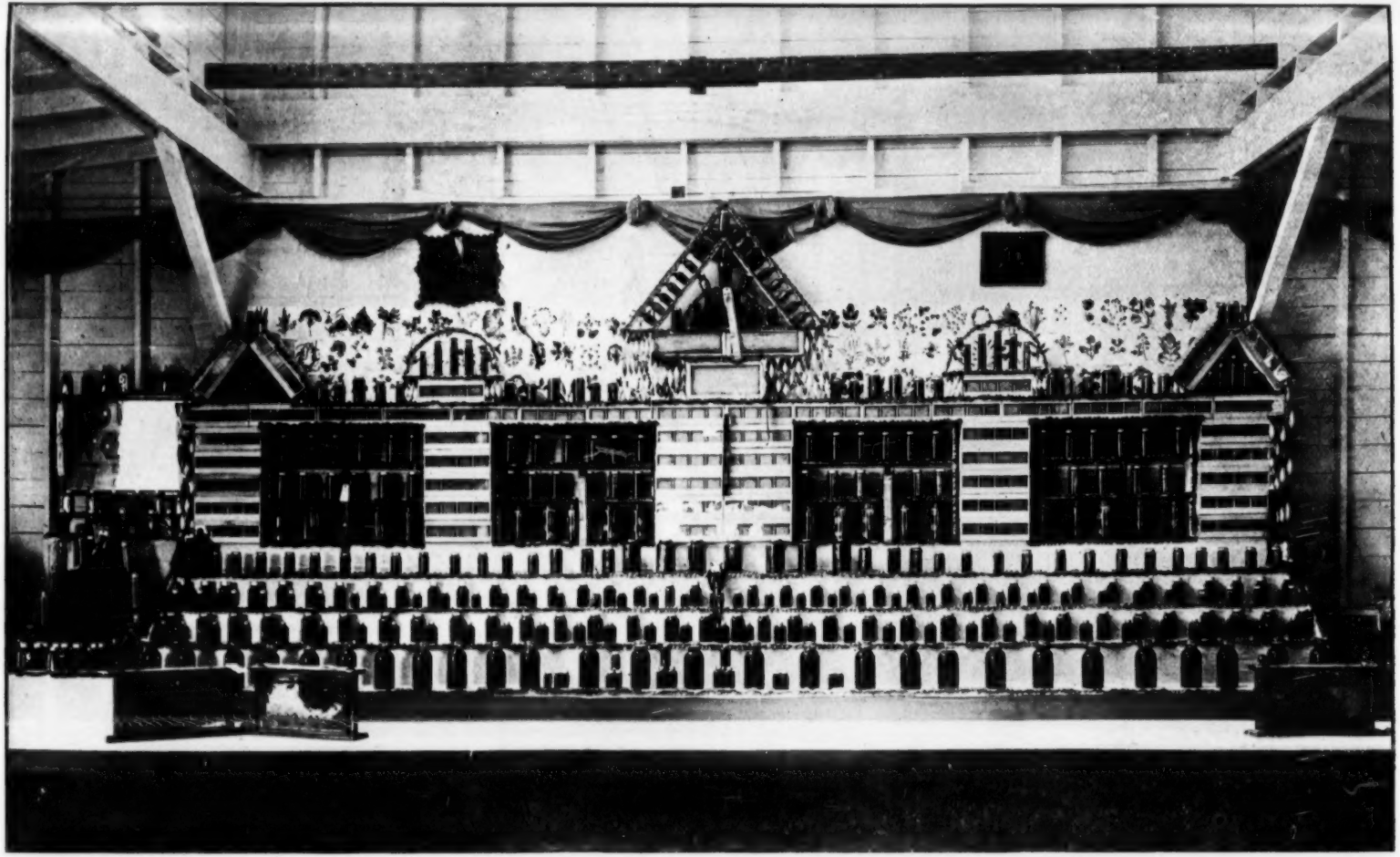
CLASS 1.—HONEY.

Lot 1. Display of comb honey—
1st prize, $10, Robert Cissna, North Yakima.
2d prize, $5, Mrs. M. E. Baker, Spokane.

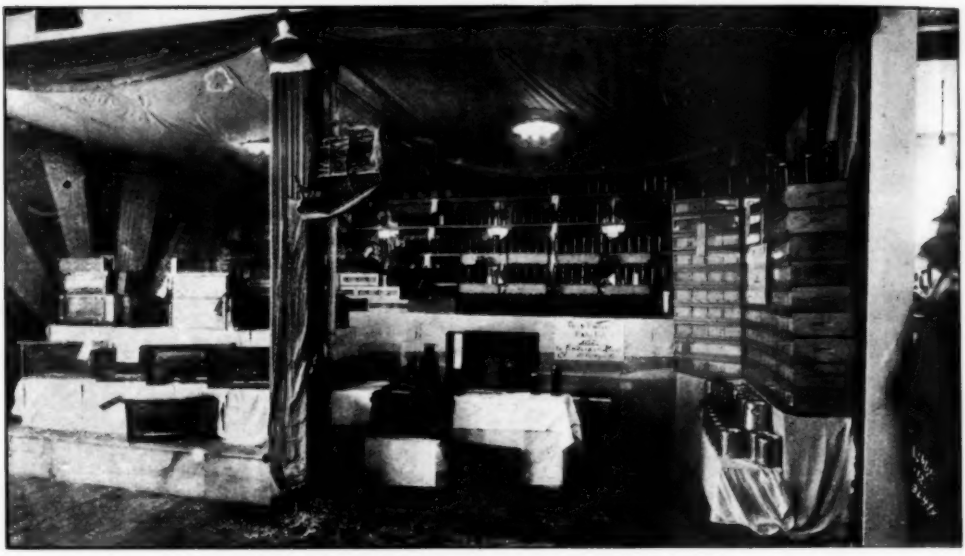
Lot 2. Display of extracted honey—
1st prize, $10, Robert Cissna.
2d prize, $5, J. A. Yeoman, Spokane.

Lot 3. Specimen of white comb honey—
1st prize, $5, Robert Cissna.
2d prize, $2.50, J. P. Kingsland, Spokane.

Lot 4. Specimen of amber comb honey—
1st prize, $5, R. Cissna.
2d prize, $2.50, Mrs. Baker.



One of the honey exhibits in the apiarian section of the Spokane Interstate Fair.



Another exhibit in another part of the section.

Lot 5. Exhibit of comb honey in an extracting-frame—
1st prize, $5, R. Cissna.
2d prize, $2.50, J. P. Kingsland.
Lot 6. Specimen of extracted honey—
1st prize, $5, J. A. Yeoman.
2d prize, $2.50, R. Cissna.
Lot 7. Specimen of beeswax (10 lbs. or more)—
1st prize, $5, R. Cissna.
2d prize, $2.50, J. P. Kingsland.
Lot 8. Design in beeswax—
1st prize, $5, Mrs. F. T. Dodge, Kiesling.
2d prize, $2.50, Miss Fanny Breik, Spokane.

CLASS 2.—BEES.

Lot 9. Single-comb nucleus golden Italian bees—
1st prize, $8, J. P. Kingsland.
2d prize, $4, Mrs. Bolser.
Lot 10. Single-comb nucleus dark Italian bees—
1st prize, $8, J. P. Kingsland.
2d prize, $4, R. Cissna.
Lot 11. Single-comb nucleus black bees—
1st prize, $8, J. P. Kingsland.
2d prize, $4, Mrs. Baker.
Lot 12. Single-comb nucleus Carniolan bees—
1st prize, $8, J. P. Kingsland.
2d prize, $4, Mrs. Baker.
Lot 13. Single-comb nucleus Caucasian bees—
1st prize, $8, Mrs. Baker.
2d prize, $4, J. P. Kingsland.
Lot 14.—Greatest variety bees displayed in single-comb nuclei—
1st prize, $10, J. P. Kingsland.
2d prize, $5, Mrs. Baker.
Lot 15. Most attractive display of bees in observation hive—
1st prize, $10, J. P. Kingsland.
2d prize, $5, Mrs. Baker.

SPECIAL PREMIUMS.

Most instructive exhibit—one select tested Italian queen, Root's Red-clover strain, value $4.00, J. P. Kingsland.
Winner of class 3, lot 1, 250 Root's "A" grade section honey-boxes, Robt. Cissna.
Winner of class 1, lot 2, 100 Root's self-spacing brood-frames, value $3.00, Robt. Cissna.
Winner of class 2, lot 14, one pound each of Root's comb foundation, value $2.50, J. P. Kingsland.
Winner of class 1, lot 3, copy "Advanced Bee Culture" for expert beekeepers, published by A. I. Root Co., value $1.00, Robt. Cissna.
Winner of class 1, lot 7, copy "A B C of Bee Culture," leading text book on beekeeping, 576 pages, and several hundred illustrations; value, $1.50, Robt. Cissna.
Winner of class 1, lot 6, one standard Root bee-smoker, value 85 cts., J. A. Yeoman.
Winner of class 1, lot 5, *Gleanings in Bee Culture*, full year's subscription, $1.00, Robt. Cissna.
Best exhibit by lady beekeeper, copy "How to Keep Bees," by Anna Botsford Comstock, value $1.00, Mrs. Baker.

EXPERIENCES OF A FOUL-BROOD INSPECTOR

Some Unusual Locations for Apiaries

BY J. E. CRANE

Continued from page 766, Dec. 1.

I wish I had kept track of the number of different styles of hives I have found in my work. Some were large, holding two or three bushels, and some small; some with large entrances, some with small; some with porticos, and others without; some with frames, many without. It had been so long since I had seen bees in box hives that I did not know that any one used them; but after finding large yards with no other kinds I began to think I didn't know all about beekeeping, especially when I found the bees in box hives in decidedly better condition as a rule, in the spring, than those in frame hives. One man asked me

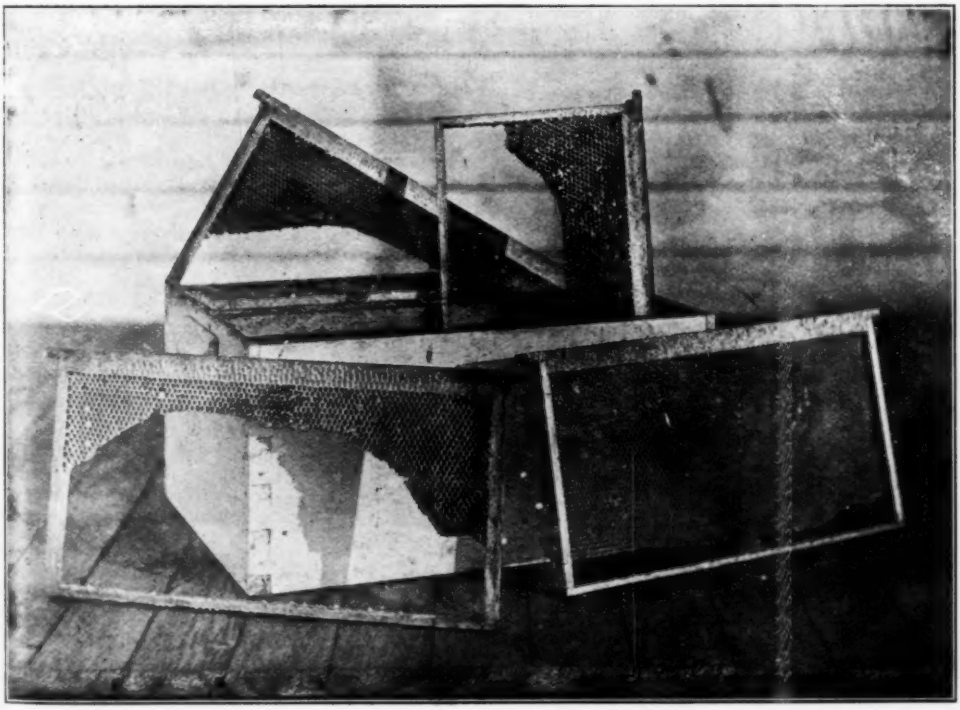
in regard to changing from box to frame or patent hives, as he called them. "Don't, don't," I said, "unless you are going to use the frames, for of what earthly use are frames in a hive unless they are used by the beekeeper? They cost more, and are not as good. Of course, if you use them they can be made of great value, and for the suppression of disease they are useful."

I found one yard full of great clumsy box hives, made of coarse lumber, but every hive was blessed with a portico, Langstroth style, tacked to the front of it. The idea seemed to be that bees, in order to do well, must have a nice place to lounge, just as a man, to be quite happy, must be able to sit on a hotel piazza and smoke.

I find that many beekeepers fail to get much surplus because of lack of a large enough passageway from the brood-chamber into the supers. I remember seeing one hive with one small hole from the brood-box into each box placed on top. Unless bees have a larger opening it is almost impossible to ventilate such a receptacle or to allow the bees to pass through freely enough to store much honey. Such beekeepers are "right smart backward in getting ahead," as some one has said.

I have found some apiaries located near the house, others down in the meadow ten or fifteen rods away; sometimes in bushes, or among weeds so thick I had to hunt for the hives. In one yard we had to climb through a hen-house window in order to reach some of the hives. Some are on beautiful lawns, in gardens, or orchards, and others on side hills. One such was so steep that I fell three or four times in trying to get up to it, and had to get behind the hives to keep from falling off. I was rewarded, however, for I found a new style of honey-box I had never seen before. Two quart fruit-boxes were tied together, a hole cut in the bottom of one and then placed over a corresponding hole over the brood-chamber. The proprietor said they worked well. I did not dispute him, for I had never tried them.

Another apiary was located on a side hill less steep, and was very pretty. The owner, in addition to being a beekeeper, was a taxidermist. A room in his home was as good as a museum, containing a large number of species of birds and animals. I was especially interested in a crow that was of a light chestnut color instead of black. As I was looking around I turned suddenly, and for the first time saw a large bear, looking so lifelike that I started away from him as though he was about to hug me.



Combs having the diseased portion cut out. See article by E. D. Townsend in the last issue, page 760.

Surplus compartment for honey, made of berry-boxes

Some hotels are not all they ought to be; but I suspect that, as a rule, they are conducted as well as some apiaries I know of. Still, there are some hotels run in connection with a liquor-saloon that are "away off," and I should like to give them a little piece of my mind. The proprietor of one asked me, as he showed me to my room, how I was pleased with his house. I could not help telling him that it would have suited me better if there had been less profanity.

In another town there was only one hotel, and this was little better than the covering for a saloon, and well-nigh bare of furniture. I left my bag, and went down street to see if I could find a restaurant where I could get a light supper, but was informed there was no restaurant in the town. I protested in one of the stores against such a hotel in a town of that size, but was told they served splendid meals.

I had noticed some people gathering near a church, and went over there and found that a church supper was being served by well-dressed people. I had a sumptuous supper for a very moderate price. During the night my bed came near falling to pieces; but I got a fair night's rest, and was ready in the morning for that splendid meal I had been assured of at the store. Breakfast was announced; and after waiting some time at a table a rather coarse young man came to me with some kind of cereal, and blurted out, "Do you ever eat such stuff as this?" The rest of the meal was after the same style.

WRITING ARTICLES FOR LOCAL PAPERS.

I have found it helpful to give a few facts to the local press, where there is a lack of interest on the part of beekeepers regarding foul brood, for it has seemed almost useless to try to control this disease unless the inspector has the hearty co-operation of the beekeepers themselves. Most country editors, and even city editors, are glad to get such items. I have also had a lot of red cards printed with these words: "Contagious Disease! It is unlawful to sell or give away the contents of this hive."

A CASE WHERE THE DISEASE DID NOT SPREAD.

In a former article I spoke of centers of infection of foul brood. One such has puzzled me somewhat. In a city of about 20,000 population, where in one yard this disease was found last year, I did not find a single colony alive; but instead I was told by the superintendent that the moths had destroyed them all. I have looked over all the yards of bees near this one, and have failed to find a y trace of disease. It would seem that the disease broke out in this yard and ran its course without spreading, and died where it began. "How did it start?" I have asked myself many times, and have decided that bottled honey was bought by grocers from our larger cities (such honey containing the germs of foul brood). Some of this honey was in turn bought from a grocer, and all that could readily be removed was consumed, after which a bottle without being washed was thrown upon the dump, and a single bee might have gathered enough at a single load to start a colony on the road to ruin.

In another center of foul brood, where it was abundant a few years ago, I found it had entirely disappeared, and farmers were keeping bees without trouble. But I said to myself, "If I throw a stone into a pond

C. A. McCarty's ducks, Walla Walla, Wash.

of water the ripples will keep going till they reach the shore." I traveled to the south without finding any thing, and then to the west for several miles without success; but when rounding a high mountain I came upon it.

Middlebury, Vt.

To be continued.

FEEDING DAMPENED LOAF SUGAR

If a colony of bees is light in stores and likely to starve, would it do any good to place a pile of loaf sugar on the frames over the cluster, and cover with quilt?

Gate City, Va., Nov. 29. H. P. GROGAN.

[Mr. Alexander fed loaf sugar in large quantities, and with very good results. His plan was as follows: "Make some rims two inches deep, and the size of your hive on top; then take off whatever covering you have over the tops of the frames of the comb, and put on one of these rims. Fill this rim with cut-loaf sugar, the kind that is in cubes about one inch square. Moisten this sugar by sprinkling a very little warm water on it; then cover the sugar with cloth mats so as to retain all the heat from the bees below you can, and the bees will soon come up into this rim of sugar, every one that can, and cluster in it and eat it as they require until spring. I have fed a good many colonies in this way, and never lost one. They usually come through the winter in fine condition, even though they had only two or three pounds of honey in their hives in the fall. One winter I fed two barrels of sugar in this way with good results."

For some reason or other there has been some difficulty connected with the use of this loaf sugar by other beekeepers—perhaps because it was not sufficiently moistened, or possibly because it was not placed in a two-inch rim as advised by Mr. Alexander. Making the hard candy with granulated sugar is not at all difficult after the knack has once been learned; but it is true that considerable care must be used to get it just right. If loaf sugar can take the place of it as recommended by Mr. Alexander it would be a help all around.—ED.]

BEEKEEPING IN JAMAICA

BY F. A. HOOPER

Continued from page 806.

It appears they ran out of stores and had to resort to pollen, which killed every bee in the hive; for in these there was also the offensive smell, and the bottom-boards smeared with pollen. In one of these five colonies that died I found the queen alive.

It rained heavily all day, and the strong wind drove the rain into every crack and crevice. The bees ere this had deserted the supers and clustered over the sealed brood; all the unsealed brood was now thrown out; and in colonies which faced the driving wind and rain the bees could not venture to throw the larvæ outside, so they lay on the bottom-boards. The super combs were now getting moldy from the damp, and I feared the worst.

Monday, the 18th, dawned with the same driving rain; but the wind was lighter. It was now blowing from the southwest with great black clouds scurrying across the sky. One could now easily see a change had taken place in the weather during Sunday night. A great hurricane was devastating the western portion of the island, causing absolute destruction to cultivation, and destroying several small towns. The number of unfortunate victims who perished in this disaster was about forty.

On Tuesday, the 19th, the sun shone out brightly. A few bees ventured out of each hive, and, after flying about for a little, they returned to their respective hives. I suppose they soon discovered that there was no work for them to do that day, as every tree was stripped of the flowers they had on.

I then visited the two other apiaries which I fed when the rain set in. In one I found four colonies had died, and one in the other. The bees died of the same complaint, as above mentioned.

On the whole I do not think beekeepers have lost much, except those in the western part of the island. The much-needed rain, although a quarter which fell would have answered, will do a world of good; and the loss of a few colonies of bees will not be felt.

Before closing this article I may say that the broomweed bloomed profusely during the months of September and October. This plant yields an abundance of pollen, but little or no honey; hence the colonies were well stocked with pollen, but with very few stores before the heavy rains set in.

Four Paths, Clarendon, Jamaica, B. W. I.

Duck Eggs in an Incubator

I saw in GLEANINGS for Feb. 15 that you were having trouble with your baby ducks (in the incubator) dying in the shell. My wife manages her ducks this way. She takes her tray out and sprinkles the eggs with warm water on the 14th day, and every day from then on till they hatch. You know an old duck goes to the water every day when she is sitting, and comes back to the nest quite damp. We used a hot-water incubator.

I raised 12,000 lbs. of extracted honey last year from 100 colonies. C. A. MCCARTY.

Walla Walla, Wash., March 3.

Heads of Grain from Different Fields

Cut-loaf Sugar for Winter Feeding

Our people here have so good a bee-range they scarcely ever have to feed the bees for winter stores, and two winters I found quite a number of colonies nearly starved out, and I fed them with cut-loaf sugar over the brood-nest. Each winter I lost three and four colonies thus fed, but I suppose they were too weak to profit by feeding, as the others pulled through nicely. It is a nice clean way to feed.

This winter our whole yard is weak, and short of stores, owing to a bad season.

Now, I wish to unite weak colonies to get enough bees. Will you please tell me what you think of the feed—your experience, if any, and of the others who may have tried out the plan?

Letohatchee, Ala., Nov. 11. W. N. RANDOLPH.

[Cut-loaf sugar is not as good a feed as lump hard candy—candy that is recommended in the A B C and X Y Z of Bee Culture, under the head of "Candy." Mr. Arthur C. Miller speaks of a new coffee A sugar, which, he says, makes an excellent bee feed given to the bees direct. It has some of the characteristics of brown sugar; is a very pale yellow; and, when squeezed between the fingers, will hold its shape. We have never tried it, but would suppose it would make an excellent feed. We should be afraid that, under some conditions, the cut-loaf sugar would be too dry to make a satisfactory winter food, and we would, therefore, recommend either the candy or the coffee A sugar, referred to by Mr. Miller on page 770, of our Dec. 1st issue.

With regard to uniting, this can usually be practiced after colder weather has set in. When the bees can fly every day and go to the fields it is not practicable to unite. After colder weather sets in, when the bees will be shut in the hives for a week or ten days at a time, they may then be united; but their old location should be changed as much as possible to prevent the bees from going back.—ED.]

Questions on Tiering Up

1. How do we know when the bees are once well started so that we can raise the extracting-super and put under it a comb-honey super?

2. What is a good sign by which to discover the evident decrease of the supply of nectar?

3. Can the sections be called well ripened if left in the super indefinitely with a bee-escape board under it?

4. Is there any danger of moth eggs if sections of comb honey are kept in a case for several weeks?

5. If propolis accumulates in a hive-body, is its cleaning-up urged? If so, how about the bees and frames in it? Isn't it a good plan to clean the hives up during a favorable weather after the close of the honey-flow, if there is plenty of propolis in them?

Chicago Junction, O. LEON P. JONES.

[1. When new honey appears in the extracting-combs and the work of capping the cells has just commenced, it would be proper to place the comb-honey super underneath.

2. You can detect a decrease in the honey-flow by watching the bees themselves; although the most accurate way, if you wish to go to the trouble, is to have a hive on scales.

3. It would depend upon the weather as to whether comb honey would deteriorate over a bee-escape on a hive of bees. During a long rainy spell we should be afraid that the honey would absorb moisture and become somewhat thin.

4. If the comb honey in question had been produced over a colony of black bees there might be some danger of the larvæ of wax-moth. If the colony were strong and vigorous there would not be as much danger, although blacks do not protect their hives as well as the Italians.

5. There is little need of propolis except to close up cracks that would let in the cold. When it accumulates to such an extent as to interfere with the handling of frames, or lodges in the hive rabbets, it should be cleaned away.—ED.]

Annual Meeting of Ontario Beekeepers' Association

It was said that the annual convention of the Ontario Beekeepers' Association for 1911 broke all records for attendance; but the 1912 convention, held in Toronto last week, was more largely attended by far than last year. It is reported that 250 beekeepers were in attendance at the various sessions, the crowd at each session being about 125. Papers and discussions were very businesslike and to the point. The following officers were elected for 1913: President, Dennis Nolan, Newton Robinson; First Vice-president, J. L. Byer, Mount Joy; Second Vice-president, Miss Ethel Robson, Ilderton; Secretary-treasurer, Morley Pettit, Ontario Agricultural College, Guelph.

The next event of provincial interest to beekeepers in Ontario is the Apiculture Short Course to be held at the Ontario Agricultural College, Guelph, January 7 to 18, 1913. These two weeks will be filled just as full as possible of practical information for beginners, and advanced beekeepers as well. For particulars and copy of program address

MORLEY PETTIT, Provincial Apiarist, Guelph, Ont.

Sweet Clover for Hay in Kansas

To-day I was shown your pamphlet, "The Truth about Sweet Clover," and read a few of the statements of various ones. This was issued in 1910.

I have been feeding sweet clover to stock for about five years; and my experience has been that it is as good as alfalfa hay. I have read where it contains just a little less protein in it than alfalfa. I find it will not bloat cattle, and that it makes an earlier pasture as well as a later; that it stands dry weather and freezing weather better than alfalfa. It is my experience, too, that it is about the cheapest and best-known fertilizer for worn-out or stale ground.

Two years ago I sowed 130 acres right on the prairie and salt grass without doing another thing, and raised two good crops of hay off from the same last year, and this year I got a crop of hay and thrashed out 900 bushels of seed, for which I am offered $8.00 per bushel of 60-lbs., white sack thrown in. I am offering the same at $10.00 in any quantity or for all. I am sowing now 100 acres more, right on the same kind of ground, and will do nothing further than sow it to the ground. I believe it is the coming crop; and where you let it go to seed there will be enough shatter off to keep resowing the field so that it will be perpetual.

Garden City, Kan., Nov. 11. E. G. FINNUP.

Uniform Cage for Mailing Bees Wanted

Referring to the editorial in the October 15th issue concerning shipping bees by parcels post, I will say that some one will surely send bees in a poorly constructed cage that will make trouble later, so that bees will be barred from the mails. This is almost sure to happen unless the right precautions are taken to start with. Why not have a discussion by those who have had experience in mailing bees, and a good strong cage adopted that all *must* use?

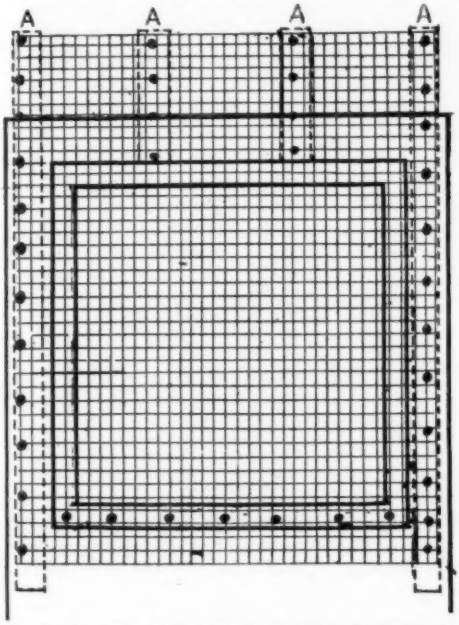
We do not want bees kicked out of the mails, especially those of us who live in this semi-arid district where occasionally we lose every thing from pollen and honey dearth. We want to get better

and cheaper transportation than we have at present. Parcels post will be a great boon to the bee business provided the bees are not barred out because of some fool's mistake. R. W. WARD.

Uvalde, Tex.

A Very Simple Honey-house Escape

I think that the honey-house bee-escape shown by J. E. Thompson, Oct. 1, page 636, is too complicated. The accompanying sketch shows a very simple arrangement of fastening screen wire to a window, which I am using on my honey-house windows, and which serves the purpose of a bee-escape to perfection. It is so simple that a ten-year-old boy



can fix it. The dotted lines marked A represent boards ⅝ inch thick by 2 or 3 wide, the two outside ones reaching down to the bottom of or a little below the window-sash, and the two inside ones extending down to the bottom edge of the top-bar of the casing. All of these strips extend upward anywhere from 6 to 12 inches above the top of the window. Stretch and tack the wire across the window to these strips and to the bottom of the sash, leaving the upper edge of the wire loose, except where it is tacked to the inside strips. Bees inside the house will naturally alight on the screen, and just as naturally climb upward and out of the house through the ⅝-inch space between the screen and the side of the house itself, 6 to 12 inches above the top of the window, according to the distance your strips extend above the top of the window. Bees on the outside, trying to get inside, will never find these ⅝-inch spaces that far above the top of the window, but will put in all their time right at the top of the window.

I have used this arrangement for years, and never yet have I seen a single bee get in from the outside, while those on the inside crawl right on out without stopping. B. W. SIMMONS.

Mexia, Texas, Oct. 7.

[Our correspondent makes a good point in that the wire screen should extend 10 or 12 inches above the window-frame itself. One foot is better than six inches, and we are not sure but 18 inches would be better than 12. When robbers get started, and get on a perfect rampage, they will sometimes go down back through the top of a screen window similar to the one shown in the illustration; and it is, therefore, important to have plenty of space above the window so that the exit for robbers will be high enough above the window so as not to attract the entrance of other robbers.—ED.]

Feeding a Bad Proposition for One Not Prepared for it

In over thirty years of beekeeping I have never had to feed until this fall. I attribute the fact to my having always lived where there was never fall nectar sufficient to be of any profit; and, lest sections be spoiled with the admixture of dark and strong honey, or the colonies store an amount in the brood-chamber insufficient to carry them over winter, my practice has been to remove every section-super the middle of July, when the clover yield is done in the clover belts. Thus my colonies have had all fall nectar for their own use, and ended the seasons heavy with honey for winter stores.

In this locality this year, though clover blooms held much longer than usual, little nectar was gotten from them or fall flowers; robbing is prevalent, and stores are quite short.

I never even owned a feeder until now. I sent for a Miller and some division-board feeders. Every feeder, though painted at the joints, leaked, and ran syrup out of the hive entrance.

I find feeding, if not prepared for, expensive, troublesome, encouraging to robbing, and very uncertain as to results. T. CHALMERS POTTER.

Doylestown, Pa., Nov. 22.

Where Did the Goldens Come From?

It is under discussion as to how the golden Italian bees originated—that is, what stock or stocks they were bred from. Please let me know.

Soledad, Cal., Nov. 16. D. A. PUGH.

[Golden Italians were obtained through selection in breeding; that is, by breeding from the yellowest stock of Italians until the four or five banded bees were obtained. Since the yellowest Italians come from southern Italy, where the bees are known to be crosser than the leather-colored stock from northern Italy and Switzerland, the reason for the fact that the golden Italians are more irritable on the average is plain. Some of the goldens have some Cyprian or Syrian blood in their makeup. This accounts for the occasional strains that are unusually vicious.—ED.]

The Physiological Effect of Feeding Sugar

This was shown through an analysis recently made of the unsealed and sealed sugar syrup extracted from the winter-nest of a colony.

In the unsealed stores the water contained was 19.5 per cent; in the sealed, 20.2 per cent; and so greater than allowed for honey, and not, as might have been supposed, greater in the unsealed cells.

Invert sugar, 60.9 per cent in unsealed cells; 64.1 in sealed cells. The inversion of the sugar continues, even in the cells. Accordingly the amount of cane sugar sinks from 14.9 per cent in unsealed cells to 11.1 in sealed cells. This abnormally high content of cane sugar betrays that it can not be honey. The nitrogenous content is quite normal, as found in pure honey—.28 per cent in the unsealed and .36 per cent in the sealed. Whence comes this albumen? Not out of the sugar, but the bees have added it out of its own organism. That explains why it is that, after being fed sugar, the bee is so eager for pollen with its rich store of albumen; also

why it becomes rapidly enfeebled upon being fed sugar if there is no substitute for the lacking albumen.

With absolute reliability the proof is consequently brought that bees are weakened—first, through too rapid feeding of large quantities of sugar; second, through feeding during continuously bad weather, or so late that pollen is no longer to be obtained.

It also becomes clear why the finest circle of pollen disappears after sugar is fed, without any brood being started; and why continued feeding of sugar in spring, with a lack of pollen at the same time, so rapidly decimates the colonies, and causes gaps in the surface of the brood. — DR. U. KRAMER, in *Schweizerische Bienenzeitung.*

A Simple Plan of Sifting to Find a Queen

Mr. B. Keep, page 703, November 1, wishes to know if anybody has a simpler plan than his for sifting bees. I think my plan is ahead of his in at least two particulars. In the first place, I do not have to drive nails in my good excluders; and, second, bees run up through an excluder easier than they will run down.

I move my hive off the old stand, put down a new bottom-board, lay a wood-bound excluder on it, then set an empty hive body on the excluder. I take out my frames one at a time, look them over carefully, then shake them in front of the entrance; and, after shaking, put the frames in this empty body. Finally I shake the bees from the bottom-board and old hive body in the same way.

After treating one hive I go to the next; and in thirty or forty minutes after I am through, the bees are all in their hive. Then I lift the hives off the excluders and find the queen on the bottom-board or on the excluder. C. A. MCCARTY.

Freewater, Ore.

[This plan is similar to that mentioned by Robert Forsyth, page 83, Feb. 1, 1912, except that Mr. F. has a special sieve designed to slip in the entrance.

As Mr. McCarty says, bees will go upward through perforated zinc when placed between the entrance and hive proper much more rapidly than they will go down. The reason for this is plain. When they are shaken in front of a hive there will be a regular stampede to get in. When they are shaken into an upper story with a perforated zinc bottom there is no particular desire to go below, and they will often hover together in a large mass, especially if the queen is with them, and it may be some time before they will all go down. For this reason perforated zinc in front of the entrance, or just above the bottom-board, is to be preferred to one placed above the brood-nest.—ED.]

Shipping Cases; Carrier Needed

Mr. Editor, you've been doing a good work by hammering away about carriers and safety cases to keep comb honey from being smashed when shipped. Now suppose you slip in a few words about another thing just as important. You can have carriers and safeties to your heart's content, and your sections will be smashed in them if the comb is not properly fastened in the wood; and to make sure of that fastening, *you must have full sheets of foundation and bottom starters.* A section thus well fastened on four sides will ship more safely in a regular shipping case without carrier than a section fastened only at top in safety and carrier.

Marengo, Ill. C. C. MILLER.

[We agree to all you say except the last sentence, and there we take issue with you strongly. We do not care how a comb is fastened in a section. If it is placed in any kind of shipping case, and is dropped or handled roughly, especially in cool or cold weather, it will be almost sure to break out, or break enough so as to allow the honey to leak, thus practically ruining its sale at even a fair price. On the other hand, a comb fastened on three sides of a section only, will usually go through in ordinarily good order *providing the case holding it is put with a lot of other cases into a carrier with a cushion of straw beneath.* A carrier is so big, heavy, and awkward that freight-handlers simply can *not* throw it. During the last few months we have seen a good many cars of honey unloaded. Not six weeks ago, as fine a lot of comb honey as we ever saw was shipped to Medina in ordinary cases without carriers. The most of this had combs secured to all four sides of the section. It was badly broken down on arrival. If this honey had been put up carefully, and had been loaded, by a beekeeper, on a car bottom, properly braced and cushioned with straw, there would not have been such a breakage and leakage. Or, better still, if it had been put into carriers, not a pound of that honey would have been broken. We hope, however, you will go on preaching the importance of full sheets and bottom starters. We join with anybody or any proposition that, directly or indirectly, will serve to deliver our comb honey to market in better condition.—ED.]

A Start with a Whole Apiary

I am a new recruit in the ranks of the bee profession. In March, 1910, because my health called for more outdoor employment, I violated all the established rules for beginners in bee culture by purchasing a small apiary (34 colonies that came through the spring), together with hives and all other tools and equipment. My experience in modern beekeeping was practically nothing. I purchased the A B C book, subscribed for GLEANINGS, and began to educate myself by reading the writings and experiences of others, and studying and experimenting with the bees themselves. My first season was so pleasant and profitable that I discontinued all my practice, except insurance work, and planned to extend my bee business to "full size." Last summer, with a spring count of 56 colonies, I of course had more honey, though the season here was affected unfavorably by the summer drouth as elsewhere. I now have 93 colonies, good, bad, and indifferent, in winter quarters. I have worked for honey rather than increase.

Pellston, Mich. J. D. ROBINSON.

Hiving Bees on Leafy Twigs in a Box

J. E. Crane's comments, Sept. 15, p. 597, on hiving a swarm by smoking, is noted. Did you ever try them this way? Take a basket or box to the spot where they are clustered; drop a bunch of leafy twigs in the bottom of the basket or box, then shake the bees on these twigs. It seems to work well. I use a little smoke too.

Spargursville, O., Sept. 25. J. R. COOPER.

[We have never tried the plan recommended by Mr. Crane; but we feel very sure that leafy twigs are more inviting to bees or to a swarm than most other objects.—ED.]

"Denatured" Sugar

Our weather here in this country was so bad that the government allowed beekeepers sugar free from taxes. The sugar, however, at the factory, was mixed with 5 per cent of ground quartz (fine sand) so that it could not be used in the home.

JOS. A. HEBERLY.

Markt Oberdorf, Bavaria, Germany.

Fondant Bee Feed Used Successfully

I wish to state that I tried E. C. Newell's fondant bee feed (page 635, Oct. 1), and fed it in a Doolittle division-board feeder with great success. I fed four colonies 10 lbs. All are in fine condition at present. JOHN R. DOUGLASS.

San Francisco, Cal., Nov. 6.

Our Homes

A. I. ROOT

Let every one of you in particular so love his wife even as himself; and the wife see that she reverence her husband.—EPH. 5:33.

A little child shall lead them.—ISAIAH 11:6.

During my busy life I have had occasion to listen to many sermons. This is especially true because I never absent myself from church and Sunday-school on the sabbath when it is possible for me to attend. As a matter of course I have listened to many good and powerful sermons, but God's messages have not *always* come from the pulpit. I told you some time back about a sermon that had a tremendous effect on my whole life; in fact, it helped to bring about a turningpoint in my life, and the preacher was a small boy less than six years old. Well, to-day, dear friends, I am going to submit to you a sermon from a girl twelve years of age. Even at that early age she is a child of prayer, and in answer to her prayers God has directed her to send this letter to me. I can not introduce her, because the letter gives only her name as "Little Ella," and no hint as to her parents' name or where she lives.* May God bless the message, and may the Holy Spirit go with it to the readers of GLEANINGS. We have thought best to print the letter just about as we received it, even to the quaint spelling of some words.

Dear Mr. Root:—I am a girl 12 years old and I am going to write to you, as I think God has told me to, asking you to do something for me. I will tell you my story. My papa is quite well off, and we have an auto, and every thing nice; but he is unkind to mamma, and she is the best dearest mamma ever was, and she is always good to papa—just cries and cries because he is so nouty to her. She works very hard to take care of things around home. Papa just makes her wait on him all the time, and he never lets her go any place with him, and never takes her riding in the auto with him; but he takes lots of other ladies. My papa has got bees, and takes GLEANINGS, and he always reads Mr. Root's piece that has verses out of the Bible and he thinks they are such good thoughts. Now, Mr. Root, if you could write a piece, something about "men orto be good to their wifes," I think my papa would read it, and it might help him. I ask God every night to tell me what to do, and I just think of you. So I guess he told me.

I pray you will not throw this in the waste basket and not pay any attention to it. I will watch GLEANINGS. Papa swears at her, and say offul mean things to her too, and don't ever give her any money. LITTLE ELLA.

You will note from the above that our young friend had no idea that her *letter* would be printed; but I have taken the liberty to do so, because I am sure it is more touching, and will reach more hearts, than any thing I could write. Her people are well to do, as you will notice; in fact, they have an automobile. But before taking it for granted that the father is alone to blame, I want to suggest that, inasmuch as it always takes "two to make a *bargain*," my experience is that it *usually* takes two to get up a *quarrel* or to stir up ill feeling. The child seems to take it for granted that her mother is in no way at fault for the existing bad state of affairs in that home with its pleasant equipment and surroundings. But I greatly fear, from her frank little story, that the mother too, at least in a measure, is in the wrong. Perhaps she is tempted to give way to complaining and fault-finding. When Satan once gets a hold in a home, it is sometimes very difficult indeed to make him let go. Nothing but the love of Christ can banish the demon and bid him be gone. This good woman should be very patient, and she should be very careful about criticising and finding fault. May be she is like our good friend Martha, as we read in the 10th chapter of Luke—overcareful about things that are comparatively unimportant.

If our young friend has gotten things exactly right, the father is certainly very much at fault; but please notice she tells us that he always reads with great interest "Mr. Root's piece that has verses out of the Bible, and he thinks they are such good thoughts." If this is true, that he loves and admires the verses I have selected out of the Bible, he certainly can not be a *very* bad man. I think it is quite likely—yes, I am almost sure—that this man and wife are, as a rule, good and worthy people. Perhaps one or both are church-members, and *yet* Satan seems to have gotten a foothold in that home. He is prejudicing the hearts of both of them, and I know by experience that it is often a pretty big job to get him out. Each of the parties will have to take a decided stand and say, "Get thee behind me, Satan." Oh dear me! I know all about it, for I have been through it all; but, thank God, it was years ago. As I go over the past in memory I can not

* The thought several times came to my mind when deciding to give this letter a place in GLEANINGS that the father, when he sees it, may be displeased with the little girl; but please let him bear in mind that the message may fit a hundred or more different households among our 30,000 subscribers. Even if the child *has* a mistaken idea in some respects, her message is honest and good. It may be the means of restoring peace and harmony to a thousand homes, through the providence of God. And let me suggest to this good friend of mine who has been reading my writings, that the proper thing to do is to put your arm around the child and thank God he has given her to you, and has chosen *her* to bear a message of peace and good will to the children of men.

help recalling the incident where the disciples utterly failed in their attempt to cast out a demon. Jesus told them, as if to encourage them, "This kind can come forth by nothing, but by prayer and fasting." They went to the Master, which is always the right thing to do, and just as this little girl has been praying over the matter of the want of love and gentleness between her father and mother. I suppose Jesus meant by "fasting" that we should be more anxious to have the demon banished than we are to have our daily food. In fact, we should set about banishing evil spirits with such earnest determination that we shall forget even hunger and daily food.

It seems to take a good while and an earnest effort for the average man or woman, or, say, father and mother, to learn that a *little* thing may start discord. The husband should be exceedingly careful in choosing words when when he feels disposed to find fault, and the same is true with the wife. This is especially true, I think, as we get to be older. Both men and women settle down into fixed habits as they become older, and sometimes these habits of the two parties clash. Now, when you feel like remonstrating or suggesting a change, be very gentle about it. Take the dear wife by the hand as you did fifty years ago. Put your arm about her as a reminder that you two are one. Suppose you want her to let up a little on the housework, and not to be so particular about having every thing "spick and span," and free from dust. Suppose you wish her to attend conference or some religious gathering, and she says she is right in the midst of ironing, and it can not be dropped. If you wish to suggest that spiritual things are of much more moment than the ironing, say it gently and lovingly; and may I suggest to the dear wife, if she finds the good husband is getting to be careless about cleaning his feet or removing his dirty overshoes before coming into the house, she should be very gentle in criticising. Wait until he is not hurried, say some time when he is in a good frame of mind; then tell him how your happiness depends on a neat and tidy dining-room and sitting-room. Suggest to him getting a good substantial foot-scraper to clean the feet; also one of the best modern rugs near the door where he usually comes in. If you go about it the right way, asking God to help you to be gentle and kind, you will surely succeed, and the blessing of the Holy Spirit will follow you.

Now a word about automobiles. I am really afraid they are going to make trouble in more than *one* home and in more than one *way*. Mrs. Root and I have been criticised and laughed at by a certain class because we have never yet owned an automobile that cost a thousand dollars or more, when at least a good many think we *might have* one costing two or three thousand dollars. These high-priced automobiles may bring a kind of happiness for a time; but I feel sure that a great part of them will, in the end, bring sorrow and disappointment. If they are used for taking the whole family to church, well and good; but our last county paper tells of a great drygoods store firm that took all of its employees a dozen miles or more to an outing among some rocky scenery *"on Sunday."* I have feared these automobiles, especially the stylish and expensive ones, might lead to *divorces*. If the good wife who has all her life been in the habit of saving should not care to go on these trips, especially on *Sunday*, it would not be strange if the owner would take some other woman or women who would "jump at the chance" to go.

Our young friend says, "Mama works hard to take care of things around home;" and she also suggests that the father rather expects her to "wait on him all the time." I can readily imagine that the poor woman, in her anxiety to have her household at all times in perfect order, may not herself be always in perfect trim to go out riding like these other ladies mentioned. Perhaps she has waited on him all her life so faithfully that he takes it as a matter of course, and forgets all about it. By the way, I wonder if this little girl's sermon does not hit, first and last, a good many homes, and not only a good many fathers but mothers also. May God in his infinite mercy and loving kindness send the Holy Spirit with this childish message; and may the angel of peace and love, because of it, find an abiding-place in the hearts of many a father and mother.

AVIATION—WHY ARE SO MANY LIVES LOST?

My dear Mr. Root:—I enclose clippings which explain themselves—the one regarding the fairground managers compelling aviators to ascend against their will, and the other on the subject of your talk in the current issue, also confirming my statement.

Lake Roland, Md., Sept. 29. B. B. JONES.

Below is the clipping from the Baltimore *Sun*:

AVIATOR GILL WAS NERVOUS; OBJECTED TO GOING UP IN THE AIR, AS IT WAS GETTING DARK.

CHICAGO, Sept. 20.—"Officials in charge of the aviation meet are all millionaires, and none of them knows the first thing about aviation. They violated every rule to safeguard the lives of the aviators."

William Pickens, manager of aviator Horace

Kearney, so testified at the inquest to-day of Howard W. Gill, of Baltimore, who was killed at the aviation meet at Cicero last Saturday, when his biplane collided in the air with a monoplane driven by George Mestach, a French aviator.

"Gill told me before he went into the air on the day of his death that he was displeased with the way the meet was being conducted," said Pickens. "'I don't like this idea of flying at twilight,' Gill told me.

"Gill was nervous before he started. He went up only after the officials insisted the meet would be a failure if the crowds were disappointed. Mestach is not to blame for the accident. In fact, I don't believe either aviator was."

The testimony of George Mestach, the French aviator, with whose monoplane Gill's biplane collided, resulting in Gill's death, was to the effect that he protested against going up.

"I protested to the Aero Club of Illinois against flying in the approaching darkness," he said, "but they insisted I should fly because the crowd would be disappointed if I did not.

"I consented to go up only after officials had promised that my machine would be the only one in the air," Mestach continued. "They didn't keep their promise. Two biplanes continued to race, and, instead of keeping close to the ground, where they were supposed to remain, they climbed. I was going at terrific speed when I saw one of them about 300 feet ahead of me. I tried to avoid a collision, but it was impossible."

William Burns, of Dayton, Ohio, who served as Gill's mechanician, testified that Gill had protested that it was too dark to race, and expressed fear that an accident would result with so many machines in the air.

The above condition of things brings to mind the point in Chafin's address in our issue for Nov. 1. The voice of the people, or I might say the voice of the majority, was wrong—*entirely* wrong. That "howling mob," as we might call it, was guilty of murder when it insisted that the aviator should make a flight in spite of his protest. Somewhere out west we had a similar occurrence. A young boy who had not had very much experience in aviation protested that the wind was too violent, and said he could not fly, and *knew* he couldn't, and did not dare to try. Finally, provoked by the unreasonable taunts, he replied as follows: "Well, if you insist on it I will fly, even if it breaks my neck." And it *did* break his neck. If that comes under the head of "local option" I want to say I am *not* in favor of submitting such questions to a crowd of hoodlums, and I never was.

High-pressure Gardening

MY APPLE STORY.

May the Lord be praised for apples! and may he be especially praised for the bountiful crop of apples that he has seen fit to give us this present year. In the Cleveland markets good apples are offered as low as 40 cts. a bushel; and, so far as I can learn, they are plentiful almost everywhere. Probably thousands if not millions of bushels will go to waste because there seems to be no market for them in many places. We hope the new parcels post will open a short cut between producer and consumer, and give the *children*, at least, everywhere an abundance of apples—red, "rosy-cheeked apples"—as well as those of other kinds.

Apples are still my only food for the last meal in the day. Sometimes I do take a little bit of cheese along with my fruit, for I have been all my life in the habit of using cheese with fruit, especially tart fruit.

Now, I have made some important "discoveries" during the past season in regard to apples—at least they are important to me, and I hope they may be helpful to others. When we first moved on to our new premises 32 years ago, for a little time I was too busy to plant fruit-trees. Finally a tree agent came along and said he had been delivering fruit-trees to the farmers, but there were about a dozen trees left. The man who ordered them was so far away that he could not very well go after him; and he said I might have the lot for a very small price—I think something like ten cents each. Well, we planted them out along where we proposed to have a driveway from the main road to the barn. It took about twelve trees. After they had begun bearing I sent specimens to the Department of Agriculture, and they gave me their names. I wonder if everybody knows that our Department of Agriculture will not only name your apples on receipt of samples, but they will pay all postage. Address the Pomological Department of Agriculture, Washington, D. C.

This row of trees was pretty close to the highway. The two first were Cocklin's Favorite. When the trees began to bear, the apples were so puckery and tasteless that I wondered for quite a time why *anybody* should call them a "favorite." But we soon found out that, after they had become ripe and mellow, they had lost their puckery taste, were full of juice, and had a peculiar delicious flavor, something like a very ripe pineapple. Another reason why we did not appreciate the Cocklin's Favorite was that the two trees were allowed to overbear, and consequently a great part of them were small and gnarly. After two or three years I began to discover what severe pruning will do. Last spring we

paid about $15.00 to a man for pruning about fifty apple-trees. Well, this pruning made the Cocklin's Favorite larger and fairer than ever before; but notwithstanding the trees were loaded almost to the breaking of the limbs, when the apples began to ripen along in August, as there was no market for early apples, the ground was literally covered with great beauties. We told the neighbors to help themselves. I told our employees, as they passed the trees so near the sidewalk, to help themselves and to get a basket and take some home. Well, it was worth a hundred times what those trees cost to hear the people shout, especially the urchins, as they took a big bite of those luscious apples. Now, do not write me to send you some grafts, for I start for Florida to-day, Nov. 5, and there is no one here on our busy ranch who has the time or takes the interest to cut and pack grafts. Go to any nurseryman and buy trees of Cocklin's Favorite. The next tree in the row was Early Harvest. This ripens considerably earlier than Cocklin's Favorite. But you know all about it, so I do not need to describe it.

The next tree proved to be Rawle's Genet, sometimes called "Genet" for short. This is the latest-ripening apple of which I have any knowledge. They do not even color up much before Thanksgiving time in our locality. They are hard as a rock, and keep so until spring, and with a little trouble you can have them the Fourth of July.

Now, perhaps I had better mention right here one of my discoveries. When you have an apple-tree, early, medium, or late, if you wish to prolong the season and have fine fruit for a long while, begin to gather a part of the apples as soon as they commence to show color or come anywhere near maturity. Keep these first-gathered apples, unfit to eat at the time, in the coolest place you can find—a cool cellar on the north side of the house—and you will find they will be a long time in ripening—a much longer time than if left on the tree; and the important point is that those remaining on the tree will develop larger and much finer fruit because they have more room and more sunshine. Apple-trees usually, especially where the trees are unpruned, set more fruit than they can mature properly. This year we went over the trees and picked off about half the fruit—that which was colored up most—and left the remaining half for two or three weeks. Unless you have tried it you will be astonished to see how this sort of thinning helps the remaining apples. Our winter apples were mostly picked before the leaves had fallen, as we had no killing frost before Nov. 1. Well, with the trees covered with leaves it is almost impossible for the average man or boy to get *all* of them; and I have greatly enjoyed, during the past month, going around under our apple-trees, especially after a blow or storm, and picking up the great beauties that were missed at picking-time; and they are not only great beauties, but they are finer in flavor, and more luscious, than any apples I ever ate before. The point is, after we had gathered the fruit these few remaining specimens hidden by the leaves had the benefit of the entire vigor of the great strong tree. I suppose there was more vigor this year than usual away along late in October, because the great mass of foliage was bright and green and unharmed by frost. We gathered about half of Rawle's Genet the last of October. The remaining half will stay on the trees until Thanksgiving, or perhaps till toward Christmas. This Genet apple is so hard that frost does not seem to affect it—at least while hanging on the tree. The next tree in the row proved to be a Maiden's Blush, and probably you know all about this. Then comes the Northern Spy, the great standard winter apple for eating and cooking. Then comes a tree of the Fallawater, that a great many people make fun of, but which, when properly developed by pruning and other care, are, *I* think, along in the spring just luscious. And they grow so large that one big apple makes a good "supper."

Now, after purchasing and setting out the above trees I happened to visit our State fair; and when there I got to talking with an apple-man who wanted some bees. I traded him bees enough for a hundred apple-trees. I can not tell you about the whole hundred trees, but I am going to speak of three of them in particular in that lot. They are the Gravenstein that is just now making such a sensation, not only in the great apple regions of Colorado and Oregon, but wherever these apples are shipped. I suppose you know our pomologists have graded apples according to quality. No. 1 is the poorest and No. 10 is the best. I think the Ben Davis has the honor(?) of being classed as No. 1; but some of the Ben Davis apples raised down in Missouri; "the land of the big red apple," are greedily taken at a nickel apiece along in the spring down in Florida. Well, while the Ben Davis is classed as the poorest, the Gravenstein *heads* the list for quality. Its one fault is that, in our region, it

is a fall apple. We began eating them in August—I think the last of that month; and while disposing of our apples before going to Florida we had two bushels of beautiful Gravensteins as late as Nov. 1; and my second discovery is to tell you how I managed to prolong the season of this exceedingly luscious apple. When they first began to show signs of ripening I picked those that began to show color, and put them in a cool place, as I have explained. Then we kept on picking them in this way. Of course, the five families (each one of our five children has children of their own, one or more), were clamoring for these Gravensteins; and I suspect that some of them thought "grandpa" was getting to be penurious in his old age because he doled them out only soft apples, or those that had just commenced to spoil. In fact, Mrs. Root said, with a little sarcasm, that my great discovery consisted in having only rotten apples to eat all the while, while the common way was to pick out the best and throw away the rotten ones. Now, before I had reduced the matter to a "science" perhaps this was somewhat true; but I have just discovered recently that neither the Gravenstein nor any other apple commences to decay without showing symptoms, even before a rotten spot is visible. If you sort over the apples you have on hand, say twice a week, and press them gently, you will find that the one that is getting ready to spoil will first become mellow, especially on the spot where the rot starts. After a little practice your fingers will become sensitive to these spots, and they will almost automatically pick them out. Now, use these apples thus picked out, at once, or give them to your neighbors to use. In fact, any apple is at its *very best*, just *before* decay becomes visible. You may say this is lots of trouble. But *I* love apples so much that I just enjoy it. When I am tired of my work in the office, the thought of going out in the cool air and into the apple-shed, and "sorting apples," makes me feel like a boy again.

Now, there is another science in making such work pleasant and handy. Have enough potato-boxes to contain all of your apples. Turn two empty ones upside down. Now set a crate of apples on one empty box and an empty crate on the other. Put them side by side, and they are just high enough so an old man like myself can work without stooping over very much. Take two apples in each hand. If small, you can take three in each hand. Lift them from the full crate into the empty one. You want to get a strong light and good spectacles, and then by the aid of the fingers and eyes you can very quickly pick out all the apples that are going to spoil, and put them in a little basket near by.

This year our Northern Spy apples have not kept nearly as well as usual. As they are winter apples I did not go over them at all until they had stood perhaps two or three weeks. To my great surprise, out of six bushels I found almost a whole bushel that had begun to rot more or less. Had I sorted them once a week or twice, as I did the fall apples, nearly all of them could have been saved. It has been urged that an apple partly rotten is unwholesome and unsanitary. That may be true; but a great big nice apple with a fourth or less of it spoiled is, in my opinion, just as wholesome as an apple entirely sound—that is, after you have cut out the bad part; and I ought to know, because I have eaten such apples for the past two or three years, and my health just now, thanks to a kind Providence, is just splendid. Some of you may say you would be very glad to have one meal a day of apples if you could afford it; but, dear friend, I think you are making a mistake. If you have three square meals a day, no matter where you are or how you are fixed, these three meals, counting the labor of getting them ready, cost at least ten cents each. Now, ten cents will buy a big lot of apples almost anywhere in the United States. In many places just now you can buy a whole peck for a dime; but I think that, as a rule, take it the year round, a nickel will buy as many apples as you want for a meal—especially if you buy them by the peck or bushel. I do not let a single apple spoil, as I have explained.

By the way, I forgot to mention that this rule I have spoken of will not always tell you about an apple that has commenced to rot at the core; but now here is another trick. Apples that rot at the core generally commence to do so at the stem end; and while you are sorting, put the tip of your fore finger down close to the stem and push it in toward the core. If decay has begun you will find it a little softer at that spot.

I have not mentioned wormy apples, because, thanks to science, it is a disgrace to have wormy apples in your orchard or in your apple-cellar. While you are sorting, if you notice any apples showing indications of being wormy, throw them out to be used first.

There is one other apple I forgot to mention. It is the Paradise Sweet. This, too, is puckery and insipid until along in the

spring; but as it feels soft and looks soft along late in the fall, you may think they are fit to eat, or that they will not keep anyhow; but when the weather becomes real cool they will stop rotting, and with proper care they can be kept clear up into June; and after having thus preserved some fine specimens until May or June I have frequently declared it to be the most luscious apple in the world. When it is real ripe and mellow its insipid sweetness gives place to a most delicious combination of tart and sugar.

Now, if you are getting to be an apple crank like myself I may some time tell you more about apples; for I feel sure that both you and I will live to a greater age by having apples take the place of at least one meal in the day; and not only that, you will keep the use of all your faculties to a greater period than with any other diet.

Now, dear friends, do not imagine from what I have written that it will be all right to eat a big lot of apples *after* you have already had a good hearty supper. It certainly will not work. Every little while, especially when we have a picnic or social, I eat "supper" like other folks, just to see how it will work, and good old Dame Nature makes a kick every time. Perhaps, however, to be more truthful, I should put it this way: My faithful old companion (all my life thus far) gives me the "kick," and says, "Come! wake up, 'old huz.' You are having the nightmare."

SWEET CLOVER AS A COVER CROP FOR APPLE-TREES.

We clip the following from the *Intermountain Fruit Journal:*

It would have been a crime some years ago to have any thing but the very cleanest cultivation in the orchard; and the fellow who allowed a spear of any thing green to show was not a good orchardist. Now the fruit-growers have come to realize that no soil is inexhaustible; and when much is being taken out from year to year something must be put back. It was impossible to get commercial fertilizer at a price that would permit its use, and there was too little stable manure available to do any good. Then some one discovered that alfalfa, red clover, cow peas, and even the once detested sweet clover was a most excellent cover crop that could be grown and turned under. This has been practiced almost universally in this section, and the orchards all show the results. Old trees that acted as if they were hide-bound are making excellent growth this year—proving the necessity of fertilization.

If I am correct, the above is exactly in accordance with the teachings of our Ohio Experiment Station. The once detested sweet clover is now gladly welcomed and wanted everywhere. Did you ever?

SWEET CLOVER AND THE DIFFICULTY OF GETTING IT TO GERMINATE THE FIRST YEAR.

The following letter from an experienced man illustrates the matter:

In March, 1911, I sowed 80 pounds of unhulled white-sweet-clover seed on 5 acres, and that spring I got a very poor stand; but I said I would let it go, for there was plenty to seed the ground another year. In the spring of 1912 there were three times as many plants came up as there were in 1911. You remember the spring of 1912 was very wet. I now have a splendid stand of clover on these five acres; part of it bloomed this summer, and part will bloom next summer. This is the reason I am anxiou to have my seed hulled this time. I think it will sprout quicker. I want to sow about 1200 lbs. of white seed in the spring.

Brooksville, Ky., Oct. 14. H. A. JETT.

As our friend suggests in the above, hulled seed is certainly more sure to germinate than that with the hulls on; and a process adopted by our Department of Agriculture, mentioned on page 324, May 15, treating the seeds with sulphuric acid where a prompt and full stand is desired, will very likely be advisable.

FARMING IN FLORIDA; BOTH SIDES OF THE MATTER.

I think you are wrong in printing that advertisement about Florida. I have been there, and know it is the poorest State for farming in the Union. I came near being caught. Thank God. He kept me from "land grafters."

Compton, Cal. A. H. NASH.

My good friend, if you mean to say that the *whole State of Florida* is a poor place for farming, you are making a big blunder; but if you mean ordinary farming, such as we have here in the North—growing grain, for instance—you may be partly right; but if you were to go down to Manatee Co. just now and see what crops are being grown, and the prices that up-to-date truckmen get for their crops, I think you would be obliged to change your mind about that advertisement by the Seaboard Air Line. There are, without question, places in Florida where the land is very poor and unproductive. Perhaps your visit was made some time ago. Just now expert gardeners are obtaining results in growing potatoes, and other articles of food, that compare favorably with any other spot in the world. May be you had better make us another visit.

THE BOY WHO SMOKES AND HIS CHANCES.

I am sorry I can not tell where the following clipping came from. Does it not about hit the right spot?

The boy who smokes cigarettes need not be anxious about his future, for he has none.—*David Starr Jordan, President Leland Stanford University.*

Index to Gleanings in Bee Culture

Volume XL

In using this index the reader should not fail to note that it is divided into five departments, namely, General Correspondence, Editorials, A. I. Root's writings, Contributors, and illustrations. The index of General Correspondence includes everything except editorials and A. I. Root's writings.

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Gleanings for 1913

The six special numbers for 1912 were received with such enthusiasm that we have decided to outdo our efforts of last year, and we take pleasure, therefore, in presenting the following special numbers for 1913:

Jan. 1--Beginners' Number

Experiences and mistakes of beginners. Beginners' questions. An experience with a swarm of black bees.

Feb. 1--Old-timers' Number

It is a matter of great pride to us that nearly sixty of our present readers were with us back in the "Windmill Days," more than forty years ago, when GLEANINGS first made its feeble start. We have letters from these men that are intensely interesting to the beekeeper of to-day, and we shall publish them. We intend this issue to be a glimpse of beekeeping in by-gone days. In this historical number we hope to show something of the drawbacks that had to be met when beekeeping was in its infancy. Many lessons may be learned by reading history.

March 1--Women's Number

There have been repeated requests for a special number devoted to beekeeping for women. There were many requests for this last year, and we are at last prepared to furnish what we believe is a splendid array of material from our beekeeping sisters who have made a success with their bees. There are thousands of other women who would be glad to take up bees were it not for their natural timidity, or their fear of stings. This number will serve, not to point out an easy path toward success, but to show how difficulties in the way may be surely overcome.

April 1--Out-apiaries

Ever since our special number on automobiles was out we have received complimentary letters regarding it, and requests for more particular information of the same kind. In this special number we propose to have a full discussion of the automobile as used in out-apiary work, both for hauling and for going to and from the yard. In this number there will also appear many articles regarding the equipment used at out-apiaries as outlined in our editorial, page 610, October 1.

May 1--Swarming and Increase

In the North, South, East, and West

This is a subject that is of vital interest to every beekeeper in every locality, and no list of special subjects would be complete without it. We shall make an effort this year to have articles from all parts of the country, so that no one can complain that the directions given do not apply in his special locality.

July 1--Marketing Honey

We already have a number of splendid articles from experts in this line. Beekeepers are waking up to the possibilities of selling their crop as never before, and those who have heretofore sold at any old price are beginning to realize the mistake they are making. This number will be full of practical suggestions for profitably disposing of the crop.

Aug. 1--Beekeeping as a Recreation

In addition to the army of men and women who are making beekeeping their sole occupation, there is a rapidly increasing number of professional men, lawyers, doctors, ministers, teachers, etc., who find beekeeping a delightful avocation. In this special number some of them will tell why beekeeping is so admirably suited for this purpose. Some "big men" are going to contribute to this number.

We are proud of the fact that GLEANINGS has never had to go begging for material. We have never seen the time yet when we did not have more good articles on hand than we could possibly use. Nevertheless, in spite of this, we are going to solicit this year a large number of the special articles mentioned above. We are not merely going to fill up our pages; we are going to try to give you the very best that we can obtain. Is all this only an introduction to prepare the way for an announcement of a higher subscription rate? It is not. The price remains the same—one dollar per year.